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ANT-MAN

KRAMER MORGENTHAU, ASC  
TERMINATOR GENISYS

MAURO FIORE, ASC  
SOUTHPAW

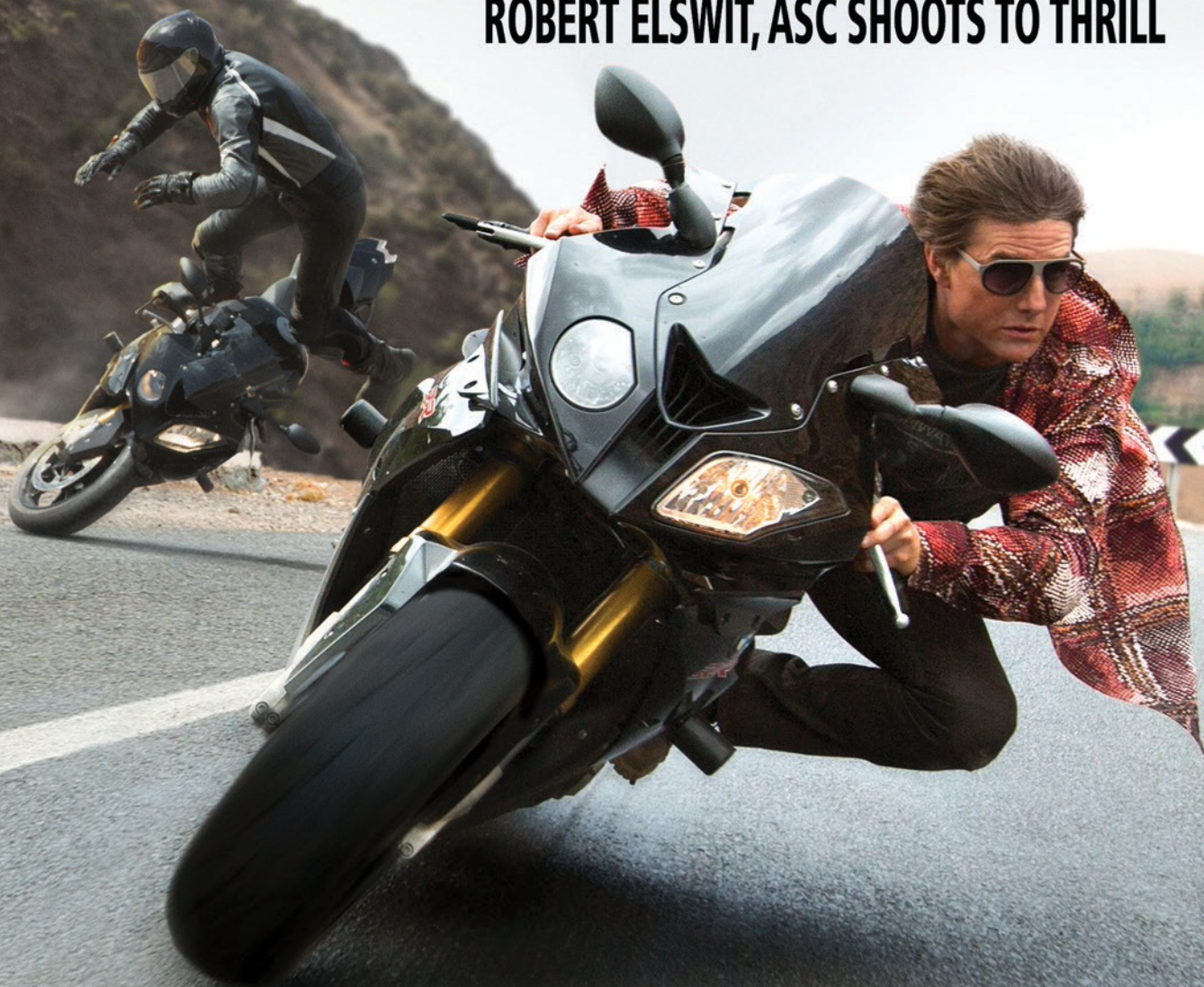
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An International Publication of the ASC

AUGUST 2015

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On Our Cover: Impossible Mission Force agent Ethan Hunt (Tom Cruise) races to take down a nefarious syndicate in *Mission: Impossible – Rogue Nation*, shot by Robert Elswit, ASC. (Image courtesy of Paramount Pictures.)

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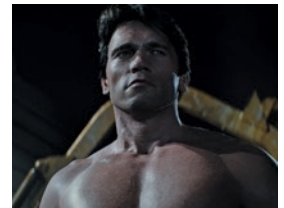
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## THIS MONTH'S CONTRIBUTORS

### **Mark Dillon**

is a freelance writer  
("Time Travelers," p. 54).

### **Andrew Fish**

is the associate editor  
(Production Slate, p. 20).

### **Michael Goldman**

is a Los Angeles  
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p. 32).

### **Noah Kadner**

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("Macro Heroics," p. 44).

### **Debra Kaufman**

is a freelance writer  
("Personal Battles," p. 64).

### **Stephen Nakamura**

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Company 3 (Post Focus,  
p. 74).

### **Patryk Rebisz**

is the cinematographer and  
co-director of *Shoulder the  
Lion* (Filmmakers' Forum,  
p. 76).

### **Phil Rhodes**

is a filmmaker and freelance  
writer (Short Takes, p. 14;  
Production Slate, p. 26).

### **Jon D. Witmer**

is the managing editor  
(In Memoriam, p. 85).

# Editor's Note



After watching footage of Tom Cruise dangling off the side of a military plane in full flight, 5,000 feet above the British countryside, I had a hunch we'd be covering *Mission: Impossible – Rogue Nation*, the fifth film in the *Mission* franchise. The movie's cinematographer, ASC member Robert Elswit, had already conveyed to me that this latest installment was worthy of in-depth scrutiny, and I'm inclined to listen to the recommendations of a guy whose cinematic C.V. includes *Boogie Nights*, *There Will Be Blood*, *Mission: Impossible – Ghost Protocol*, *The Bourne Legacy* and *Nightcrawler*, among other impressive titles.

After accepting his second *Mission*, Elswit set out to create a "classic movie look" in anamorphic widescreen that would lend a grand dimension to the exploits of IMF agent Ethan Hunt and his fellow spies. He discusses this decision and others in Michael Goldman's Q&A piece ("Going Rogue," page 32), which also includes comments from key crewmembers. "This is a movie-star movie," Elswit observes. "It's the opposite of a *Bourne* movie; we're not looking at [the characters] with long lenses, fast cuts and whip pans. We wanted a kind of strong, heroic, romantic style."

*Ant-Man*, shot by ASC member Russell Carpenter, also showcases heroism, albeit on a microscopic scale. Because the movie's hero is capable of shrinking to insect size, Carpenter was tasked with creating perspectives that would reflect the diminutive character's worldview. "There's a long history of shrinking-character movies, from *The Incredible Shrinking Man* to *Honey, I Shrunk the Kids*," director Peyton Reed notes in Noah Kadner's coverage of the project ("Macro Heroics," page 44). "Russell was like-minded that we could make *Ant-Man* the 2015 version of the genre and be as photo-realistic as possible by avoiding the oversized-prop look of many of those earlier films."

Kramer Morgenthau, ASC looked back to the future on *Terminator Genisys*, the fifth movie in that indestructible series, which brings Arnold Schwarzenegger back onscreen as a reprogrammed T-800. Morgenthau was tapped for the project by director Alan Taylor, with whom he had previously collaborated on the feature *Thor: The Dark World* and the TV series *Game of Thrones*, among other projects. In Mark Dillon's article about the production ("Time Travelers," page 54), Morgenthau offers a concise assessment of the duo's harmonious on-set chemistry: "We share a similar aesthetic, and having done this much work together, we know each other's strengths and weaknesses and complement each other well."

Mauro Fiore, ASC sought hard-hitting realism for *Southpaw*, a boxing drama directed by Antoine Fuqua. To help make the film's fight scenes look as authentic as possible, the pair enlisted camera operators who work on HBO boxing broadcasts, and all four of the fights were shot in the first two weeks of production. "Jake and the other fighters had to be prepared to go all the rounds of each fight without stopping, and we were rolling the whole time," Fiore tells Debra Kaufman ("Personal Battles," page 64). "It was exhausting for them, but it ended up being incredible, due to Jake's preparedness and Antoine's intensity in getting the action in a continuous run."

Stephen Pizzello  
Editor-in-Chief and Publisher



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# President's Desk



Ask any member of the ASC what it's like to be part of this great organization and you'll likely hear an expression of humility, a virtue that could easily have been tacked onto our founders' motto of "Loyalty, Progress, Artistry." You might also discover a little presumptuousness among some of us, the type that assumes that everyone embraces our intentions and understands our place in the order of things. I can be as guilty of that as anyone, and I'm always astonished when I encounter crewmembers or executives who *should* know about us but don't. In the interest of filling that gap, here's the straight story.

You may have already read the short explanation that runs above the listing of current officers and Board members in each issue of this magazine:

*"The ASC is not a labor union or guild, but an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as directors of photography and have demonstrated outstanding ability. ASC membership has become one of the highest honors that can be bestowed upon a professional cinematographer — a mark of prestige and excellence."*

Note that we are an *invitation-only* organization. You can't just call up and join. You can't be a newcomer to the career, either. Membership is open to directors of photography who have occupied that position for no less than five out of the eight years preceding application. As you might expect, the individual's work must have continually demonstrated superb taste and technical mastery. In addition

— and little known to the industry at large — good character is an important prerequisite. Those who are dishonest, abusive to their crews or who have any sort of dodgy reputation are inevitably found out and barred from our ranks.

Assuming all cylinders are firing, a candidate must then be proposed in writing by three active or retired ASC members. Eventually, this person will be summoned to an interview before our Membership Committee, which executes the Society's due diligence by considering the prospective member's qualifications — and believe me, they take their job seriously. This phase also includes a screening of the candidate's work in the form of a sample reel. Afterwards, the person is sent home and a vote is taken on their suitability.

The Membership Committee's recommendation is then presented to the Board of Governors for further consideration and a vote, with two-thirds majority required for approval. Spirited debate often ensues, and occasionally a candidate may be stalled at this point. On the other hand, even a unanimously positive vote does not yet clear the way for membership.

That goal is reached only after clearance of the 30-day "posting period." During this interval, the entire membership is informed of someone's pending invitation. Everyone is given the opportunity to review the candidate's sample reel and bona fides, and is free to voice any objections. Sometimes, further investigation is warranted and a candidate's advancement is tabled until matters are sorted out. In most cases, though, they pass this stage with flying colors.

In the entire history of motion pictures, fewer than 800 individuals have earned a place on our roster. Currently, we boast more than 350 active members and about half as many associates. With regard to those highly respected folks who work in support of cinematographers or in related industries, proposal letters are required from two active members, followed by approval by the Committee and the Board.

The ASC's mission can be summed up in simple terms: to protect and promote any and all concerns of the cinematographer. This is accomplished through the work of nearly 20 committees, each made up of members and associates with a keen interest in the issues at hand. Our crown jewel may well be our 13-year-old Technology Committee, chaired by Curtis Clark, ASC. From a standing start, it has evolved to become the guiding voice in the development and implementation of our digital tools and workflows.

Others might hand top billing to our Awards Committee, and I can't really blame them. Everyone knows the ASC throws the best parties in town!

As you can see, there are a lot of reasons why the ASC has remained such an elite organization for more than 96 years. With our 100th anniversary just over the horizon in 2019, I assure you that our standards will be maintained. If they were with us today, I'm certain our founders would be impressed.

And I'm sure that one day our descendants will say the same about us.

Richard P. Crudo  
ASC President





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# Short Takes

A heartbroken alien from the moon tries to make her way in Los Angeles in the short film *Myrna the Monster*.



## Alien Encounter

By Phil Rhodes

From the highest of high-end feature filmmaking to the rough and tumble of newsgathering in some of the world's least salubrious locations, making on-camera talent look good is a common challenge among camera crews. This is no less true in the case of Benjamin Kitchens' work on the puppet-starring short film *Myrna the Monster*, written and directed by Ian Samuels. The film was produced by Nonetheless Productions as part of a program funded by MTV's Other initiative, something the company describes as "totally original, occasionally random [and] often weird." Kitchens confirms that in no sense did the requisite degree of originality, randomness and weirdness mitigate his responsibility to the titular star — an alien from the moon living in modern-day Los Angeles. As Kitchens notes with staggering understatement, Myrna "has quite a nose on her."

Kitchens' course toward *Myrna the Monster* began at Drexel University in Philadelphia. "My girlfriend — now wife — was going to school in the film program," he remembers. "I was going to community college to be an engineer, and I ended up transferring there to do music and be a recording engineer." The move to filmmaking came via music, after Kitchens had "scored a couple of short films and ended up working on the sets. I really liked it [and] ended up working on commercials in Philadelphia, in the electrical department, while I was in school and after I graduated.

"I'd been gaffing maybe three or four years, and I was working in Philly, New York, Connecticut," he continues. "I reached this point where I wanted to shoot." In pursuit of this ambition, Kitchens applied to the American Film Institute and was accepted. His thesis project,

*Narcocorrido*, was one of seven nominees for the 2012 ASC Andrew Laszlo Student Heritage Award. After graduating in 2011, he says, "it's been music videos, commercials, and a decent number of short films."

*Myrna* director Samuels was, in one sense, an old collaborator, though the two had not worked together for some time. "A good friend of mine, Callie Andreadis, [*Myrna's*] production designer, introduced us. [Samuels] was shooting a spec spot for Pez with no money, trying to do something. I shot that for him maybe four years ago, and when *Myrna* came about, he asked me to do it." Kitchens confirms that the choice of subject was no surprise. "Ian's always liked stuff with puppets. Basically, MTV had given him a small amount of money and he wanted to make sure he could make a short film out of it."

The 15-minute short was shot over six days in April 2014, with one additional day of pickups for the credit sequence. The intention to create an almost documentary-style montage structure demanded a hectic schedule. "There must have been 15 or 16 locations, two or three locations a day," Kitchens says. "The script was very much written in vignettes, a sort of wandering process through Myrna's experiences in Los Angeles. It's very much a montage, jumping in time and going in and out of her backstory."

The film's puppetry in effect turned most setups into a physical-effects shot, with the need to avoid giving the game away by showing puppeteer Victor Yerrid or any of the necessary rigging. "I'd done visual-effects work, but I'd never shot a puppet before," says Kitchens. There was a temptation to shoot unadventurous material that would alleviate the potential complexity, but Kitchens insists this was not the director's intent. "This was a location-based

All images courtesy of the filmmakers.





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Top: Myrna washes her clothes at the Laundromat. Middle and bottom: Cinematographer Benjamin Kitchens (red cap), puppeteer Victor Yerrid and crew capture the scene.



movie — none of it was on stages,” the cinematographer notes, adding that Samuels sought “a loose style. He didn’t want it to feel locked off.

“The reference for him was mostly a Spike Jonze sort of feel,” Kitchens continues, “like the short with the robots, *I’m Here* [shot by Adam Kimmel, ASC] — he really liked that.” The majority of discussion, though, was about framing and the personality of handheld camerawork. “I wanted to feel like [Myrna] was a person, so we approached it in a loose style.”

*Myrna the Monster* was shot on a Red Epic Mysterium-X in 5K HD mode with Zeiss Super Speed Mark 3 lenses. “I shot it [with compression ratios of] 12:1 or 10:1,” recalls Kitchens. “We were mainly on the 35mm and a lot of 50mm, especially when we were following a character.” With filtration limited to NDs, the on-set camera workflow was kept simple. The filmmakers monitored on 17" Panasonic displays and “dumped [cards] on set,” he adds. “I had a rotating camera department on this job. I had four firsts, at least — my first AC got sick right before this job, so he wasn’t able to do it, and I was scrambling to find people.

“I did the lighting the old English way — very little,” Kitchens continues. “I like that. I had a small truck; mainly it was augmenting what was naturally there. A lot of the locations we had were pretty nice and



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Top: Myrna is a dreamer, often thinking of a lost love. Bottom: Kitchens, director Ian Samuels (green shirt), Yerrid and crew prep a scene.



augmented well by [Andreadis]. I'd turn stuff off or do negative fill. Because of the sheer number of location moves I kept it as simple as I could."

Kitchens' lighting package included a K5600 Joker-Bug 800 HMI, Par cans and Source Four ellipsoidals, as well as two 4' four-bank Kino Flos, with tungsten, daylight or cool-white tubes as appropriate. "The palette is very much city: metal halide, sodium vapor and daylight," the cinematographer explains. "There's very little tungsten."

Regarding Myrna's pronounced

proboscis, Kitchens says, "One of the challenges was that her nose is so big that if you backlight her, you get a huge head shadow across her nose, which is pretty bad. We were trying to keep her looking good in that way. But most of my lighting decisions were based on the story, the idea of this being a natural, realistic character. There's a lot of trash in the movie, and we wanted it to feel like she's always hanging out with trash. So it wasn't so much about making her look good as it was making her fit into the environment and making her feel like a real person in a real world — a real alien."

With an eye toward realism, the filmmakers preferred in-camera solutions to the problems of placing Myrna convincingly in her world, but not to the complete exclusion of digital effects. "We looked for ways to do it practically, but sometimes it's not possible," Kitchens explains. "When we have shots of her walking, it's four people walking her, so we'd [shoot] a locked-off plate. A lot of [the digital-effects workload] was wire removal."

The cinematographer acknowledges the work of producer and postproduction supervisor Ki Jin Kim, who helped prepare the footage for the color grade. The production was finished at Prettybird in Culver City, Calif., under colorist Quinn Martin Alvarez, who worked with DaVinci Resolve Lite. Kitchens was only able to attend the first of the two grading sessions.

"Afterwards, Ian really pushed this through himself," he notes. "He was there for both sessions. This was a large labor of love for him, and I think it shows."

Kitchens has fond memories of enjoying "a lot of freedom, creatively, from MTV. But there were some requirements that we had to fulfill production-wise. When you're shooting in L.A. and you have to pay for permits, that's most of the budget gone." One particularly iconic location was the Sixth Street Viaduct bridge, where, as Kitchens says, "everyone shoots car commercials. We wanted to shoot Myrna walking for a transitional element, and some production assistant was telling us to hide when this car would come by with a Russian Arm — they were not interested in seeing Myrna in this car commercial." He sighs. "I think she'd have made a good spokesperson." ●



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# Production Slate



*Rolling Stone* reporter David Lipsky (Jesse Eisenberg, left) spends five days interviewing author David Foster Wallace (Jason Segel) during the final stop on his book tour in the film *The End of the Tour*.

## Meeting of Minds

By Andrew Fish

Soon after struggling novelist David Lipsky lands a position at *Rolling Stone*, he reluctantly accepts that a new novel by David Foster Wallace is the game-changing masterpiece everyone is touting it to be, and he pitches a profile of the author to his editor. Landing the assignment, he joins Wallace for the last stop on his *Infinite Jest* book tour. He travels first to Wallace's home on the outskirts of Bloomington, Ill., and with an airport closure due to heavy Midwest snowfall, the two end up on a road trip to Chicago O'Hare, where they catch a plane to Minneapolis, getting far more one-on-one time than either had bargained for. The resulting mix of curiosity, envy and intellect yields intriguing conversation, awkward rivalry, and ultimately an outpouring of personal truths.

Starring Jesse Eisenberg as Lipsky and Jason Segel as Wallace, *The End of the Tour* is the real-life tale of Lipsky's five-day-long 1996 interview with the late writer, who is considered to be one of the greatest of his generation. Director James Ponsoldt (*The Spectacular Now*) tapped Swedish cinematographer Jakob Ihre, FSF to shoot. Working predominantly handheld with a Panavision Millennium XL2, Ihre framed for 2.35:1, as he and Ponsoldt both felt that the wider

format provided "more weight and stature," Ihre explains, to a story that is essentially an expression of a fond memory.

Taking full advantage of his Kodak film stock, Ihre didn't shy away from occasionally blowing out a sun-soaked background or even bathing a foreground character in a white glow of overpowering backlight. FotoKem developed the negative, and dailies were graded by EFilm's Marc Lulkin.

Ihre's credits include the Danish production *A Family*, the Norwegian *Nokas*, and the upcoming English-language feature *Louder Than Bombs*. The cinematographer spoke to *AC* from Sweden.

## **American Cinematographer: How did you first become involved with this film?**

**Jakob Ihre:** James had seen two films I'd shot — *Reprise* and *Oslo, August 31st*. They both deal with themes of existentialism, as does *The End of the Tour*. I felt very honored, as a European, to have the chance to help reconstruct these days in the life of David Foster Wallace.

## **Which lenses did you use?**

**Ihre:** We used a Panavision Ultra Speed Z Series lens package. It's a [legacy-prime design] that has been rehoused and

*The End of the Tour* photos by Jakob Ihre, FSF and Michael Chrouh, courtesy of A24 Films



redesigned many times.

**How did you decide on the camera and lens package?**

**Ihre:** Knowing that we wanted to shoot the entire film on Kodak Vision3 500T [5219], even for bright, sunny days in the snow with a shallow depth of field, I realized that the rear ND slot of the Panavision cameras would help me to see clearly through the viewfinder — as I operate myself — in comparison to having thick NDs in front of the lens. I also like that you are almost 'getting into character' with a Panavision camera when you're shooting in America. That's a fun aspect of it, but most of all it was the rear ND slots.

**How was the decision made to shoot on film?**

**Ihre:** I always prefer the way film looks, and I think James also comes from that background. It just looks more pleasant to the eye. The other reason was that [this project] is so much about memory and nostalgia, and the texture you get from shooting [on film] captures those feelings from the start. In that sense, it's much more true to the story to use film. We shot on 3-perf Super 35mm.

**You shot on the same stock throughout the entire shoot?**

**Ihre:** We wanted to maintain consistent grain structure throughout the film. Days, nights and even the different time periods — as the film is bookended with scenes that take place more than 10 years after the road trip — were treated with the same grain and lenses. We wanted the two time periods to melt together, and to still feel the presence of the absent David Foster Wallace in the later era. If the audience understands the time jump — through the use of title cards or aging through makeup, for example — there is not always the need to invent a 'flashback look,' which can be quite tiresome and distracting.

**Did you maintain a particular T-stop?**

**Ihre:** The stop was around 2 or 2.8 throughout. First AC Michael Dzialowski did an amazing job. The whole point was to express that these memories and experiences of Lipsky's are enhanced. They're almost romantic in a way, and there is a certain beauty when he thinks back on



**Top: Lipsky struggles to keep his cool as Wallace chats with Lipsky's girlfriend. Bottom: Cinematographer Jakob Ihre, FSF (left) and director James Ponsoldt (with viewfinder) line up a shot.**

those days. Shooting fully open can support that idea, illustrating this through the diffused/shallow-depth effect — signifying memories.

**What did your lighting package consist of?**

**Ihre:** For a [night-interior] scene in [Wallace's] living room, for example, we would work with very small units. We often had 1-by-1 Litepanels, and especially an Arri LoCaster fitted with a custom Chimera cone with Lee 129 diffusion. That worked for us in those tiny locations, but what you saw through the windows — the big,

snowy fields of [Grand Rapids, Mich., which stood in for Illinois] — was lit with 18Ks mounted on cherry pickers. Above the house we built a soft box out of four 6K space lights rigged by the excellent key grip Matthew Bulleri. On day interiors we often let the sun bounce off the snow outside, [and sometimes supplemented with] 18K Arrimaxes.

**Did you have an overarching strategy when shooting the conversations between Lipsky and Wallace?**

**Ihre:** Because they do spend a lot of time in conversation, we could have slipped

Lipsky forgets where he parked his rental car and tensions boil over.



into the tendency of adding movement and action to 'cover up' the fact that they are talking so much. I'm so glad that James pushed me *not* to push the aesthetics in that direction. [We were] quiet with the camera, and tried to be as [nonintrusive] as possible — or as intrusive as Lipsky himself was, and not more — and not to think that we had to entertain the audience with stunning visuals to make the conversations interesting. Let's just be there with them and listen. The camera was often on my shoulder, with a 35mm lens always in the line of action, close to their eyelines.

**You shot quite a few conversations between Wallace and Lipsky while they were driving. What was your technique for shooting the two men inside the car?**

**lhre:** We wanted to emphasize the claustrophobia of the situation, but at other times the very opposite — a more impressionistic sense of space. The two-shot of the

actors from the hood of the car in 2.35:1 is by default a very tension-filled composition, framed within the steel frame of the front window with no sense of the surroundings, eliminating the sky and the outside of the car itself. In contrast, we shot more personal and soul-baring scenes handheld [in the backseat], where the vehicle's steel frame integrates with the overexposed sky, making the vehicle almost disappear.

**How did you light the car interiors?**

**lhre:** We could actually often rely on available light that was bounced into the car from the snow-covered landscape along the roads, and on more overcast days we used a 6K HMI through a frame and different layers of full diffusion. At night, we used EB lights, which are made out of aluminized Kevlar with FCM bulbs and Full Grid diffusion. We also used some LED [LiteRibbon] from LiteGear for brake-light and traffic-signal effects.

**Toward the end, there is a scene with Wallace and Lipsky walking through the snow together in bright daylight. It's quite different from the rest of the film.**

**lhre:** For Lipsky, his days with Wallace were so unique and so special, and we needed to show that. I believe that was one of the only shots where we stepped aside from Lipsky, seeing him from a distance, and tracking after him with a wider-angle lens than we had used in the film before — a 24mm to give a larger-than-life feel, making it almost epic.

**In the final scene at Wallace's house, Lipsky sneaks into Wallace's writing room and it's nearly pitch black, with just a few slits of light coming through the doorway.**

**lhre:** We chose to leave [Wallace's office] in darkness; we wanted to keep it enigmatic but still tell the story. It was hard in the tight space to create that sliver of light and to hit the keyboard on the desk at the right moment. We had a 1.2K HMI bounced off a poly board, which was controlled by a flag that mimicked the door opening. It's very basic, but the challenge is to pull it off within the short time allowed and coordinate the play between actor, camera and light. My gaffer, Larry Sushinski, was a very skillful collaborator.

**What kind of challenges did you encounter during the shoot?**

**lhre:** The performances were so intense. Almost every scene was between these two men, and they had many pages



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In a scene toward the end of the film, the camera steps away from the characters, to a wide tracking shot.



**lhre:** The grade was done in 2K at Modern VideoFilm in Los Angeles, and we used Blackmagic Design's DaVinci Resolve. We had a great colorist, Bryan McMahan. We stayed quite true to the rushes in many ways. Shooting in the Midwest in winter, the whites, browns and grays are everywhere. We tried to enhance and push the existing colors in order to make it more vibrant and tactile. Often we referred to *Happy Together*, directed by Wong Kar-wai and shot by Chris Doyle [HKSC] in Argentina, which is a far cry from Illinois. But that kind of romance and warmth was something we wanted to trigger in the grade by saturating — or on a sunny day, for example, pushing it even warmer and brighter than how we see it. To maintain a naturalistic look, yet to grade for a world of nostalgia and memory — we kept that as our mantra during the entire process.

## ◀ TECHNICAL SPECS ▶

2.35:1  
3-Perf Super 35mm  
Panavision Panaflex Millennium XL2  
Panavision Ultra Speed Z Series  
Kodak Vision3 500T 5219  
Digital Intermediate

of dialogue through long days and nights. Our challenges were nothing compared to what they had to deliver every day. Apart from that, the physical strain on the crew from shooting in extreme cold was very

hard — to work with passion, outside, on a night where it is 10 degrees below the record low!

**What kind of work was done in the color grade?**





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King Tutankhamun (Avan Jogia, right) struggles to lead Egypt to glory while his closest advisors, friends and lovers scheme for their own nefarious interests in the miniseries *Tut*.

## Re-Creating the Boy King's Reign

By Phil Rhodes

"My father was a carpenter, and my mother worked as a stenographer," reflects cinematographer Chris LaVasseur. "When I told them I wanted to go into the film business, my father said, 'You'll be a carpenter.' Nobody believed it." LaVasseur pauses for a moment, and then adds, "My second job, as a second AC, was on *Malcolm X*." From such auspicious beginnings, LaVasseur was well-placed to begin a career that has led most recently to *Tut*, a three-part, six-hour miniseries for the television network Spike that tells the story of King Tutankhamun (Avan Jogia), the Egyptian pharaoh who ruled circa 1330 B.C.

Having chosen to overlook his parents' cautious career advice, LaVasseur studied film production at Brooklyn College. "I worked at Camera Service Center in New York for about a year, scrubbing out cases. While I was there, I got into the union." On leaving CSC, LaVasseur's first job was as a loader on *Single White Female* under director of photography Luciano Tovoli, ASC, AIC, after which he quickly moved on to *Malcolm X* with Ernest Dickerson, ASC, and up the ladder of the camera department.

LaVasseur first met *Tut* director David Von Ancken on the series *The Following*, on

which LaVasseur shot pickups on the ninth day of ostensibly eight-day episodes. "We kind of clicked," LaVasseur recalls. "I'm a high-energy guy, and we picked up very quickly. Then I did the TV show *Hostages*, and again he came on to direct, and we shot a really good episode ['Sister's Keeper']."

Eventually, LaVasseur discovered *Tut* via his agent. "I texted David that I knew he was doing *Tut* and that I'd love to do it." After becoming aware of LaVasseur's interest, Von Ancken "pushed for me real hard," LaVasseur continues. "If it wasn't for David, I wouldn't have been on *Tut*. When he called and told me, I was like, 'Wow, this is our *Lawrence of Arabia*.'"

Given such lofty ambitions and the high demands of modern television production, *Tut*'s shooting schedule could generously be described as modest. To emphasize, LaVasseur points to Ridley Scott's historical epic *Exodus: Gods and Kings* (AC Jan. '15). Photographed by Dariusz Wolski, ASC, *Exodus* had a 74-day schedule and produced a two-hour movie. "We had 74 days to produce a six-hour movie," muses LaVasseur. "It was intense, but we were able to stay on schedule by using multiple cameras."

The production enjoyed the constant availability of two units, with three Arri Alexa Pluses — one built for Steadicam and two for studio or handheld work — carried by

each unit. LaVasseur confirms his keenness to shoot simultaneous coverage of the production's larger-scale scenes: "Anything with action or battle sequences, we'd go five or sometimes six [cameras]." Mark Vargo, ASC served as both director and cinematographer on the second unit, and would attend with the sixth camera at key times.

During a three-week prep period, LaVasseur and Von Ancken "spent many days on location in the desert working with stunt coordinator [Cedric Proust] on the battle-scene choreography and putting together shot lists," the cinematographer notes. LaVasseur credits the director with an efficient style: "We'd do [a shot] once or twice and he'd say, 'Moving on.' David, first AD Carl Ludwig and I worked very well together, which allowed us to keep moving."

Even a brief conversation with Von Ancken reveals that the director holds his cinematographer in similarly high regard. "I liked Chris' aggressive style," he says. "He got involved with operating and handheld — he wasn't sitting back at all."

That "aggressive style" was especially on display for *Tut*'s battle scenes. According to LaVasseur, Von Ancken "wanted the audience to be right smack in the middle of the action and feel what it was like to be on the battlefield 3,000 years ago." To help achieve such a perspective, both first and second units employed Blackmagic Design's Pocket Cinema Cameras with Panasonic Lumix G X Vario 12-35mm (f2.8) zoom lenses. The cinematographer continues, "We placed the Pocket Cinema Cameras very close to the action to get the best angles possible. In one particular shot, an Egyptian soldier actually jumped on top of me from a ledge while I was holding the camera." He adds that Vargo "designed very specific shots with the Pocket Cinema Cameras, such as attaching one to a bow and arrow."

Committed to making *Tut* as visual an experience as possible, Von Ancken notes that he "cut 65 pages of dialogue from the script. The writer, Michael Vickerman, isn't precious at all. I wanted to tell the story through pictures as much as possible." The director is quick to associate this ambition with his choice of LaVasseur. "Chris has an affection for classic, larger cinema. Big

*Tut* photos by Jan Thijs, courtesy of Muse Entertainment and Spike TV.



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Top: The crew films a scene with Sir Ben Kingsley (left, portraying Ay) and Joia. Bottom: Ay serves as the Grand Vizier to King Tutankhamun.



'Scope Westerns that let the picture tell the story. If I could have shot this in 2.35:1, I would have — but [the network] won't let you!"

*Tut's* camera and lens package was rented from Panavision in London and also included a full set of Primo primes; a Primo 11:1 24-275mm (T2.8); and Angenieux Optimo 15-40mm (T2.6), 28-76mm (T2.6) and 45-120mm (T2.8) zooms. "I really liked the 45-120mm Angenieux, but most of the time in the palace we stayed on the 11:1,"

notes LaVasseur. "Outside in the desert, one camera [typically] had the 15-40mm and one the 28-76mm. This helped in the extreme working conditions, as it was often challenging to make lens changes."

The Alexas recorded internally in ProRes 4:4:4 and the Blackmagic camera recorded 10-bit ProRes 4:2:2 (HQ) files. The pace of the production necessitated a straightforward approach to the on-set workflow. "We had a colorist, Trevor White, at the hotel," says LaVasseur, "so at night,

after we'd finished shooting, I'd go to his hotel room, he'd put a couple of frames up for me, and we would color-correct accordingly."

The show's expansive desert exteriors were shot around Ouarzazate in Morocco, often some distance from the crew's hotel. "Some of them were a two-hour drive," remembers LaVasseur. "Most of them were an hour plus." These scenes employed as many as 800 extras (duplicated in postproduction to look like 5,000). "And the production's expansive sets, which were built on the famous back lots of Atlas Studios where *Lawrence of Arabia* and *Kingdom of Heaven* were shot, also took a lot of filling," the cinematographer says. As an example, he notes, "The courtyard was 600-by-300 feet. We took full advantage of showing [production designer] Michael Hanan's work."

LaVasseur says his visual references came from a variety of sources on ancient Egypt, in particular the painter "David Roberts, who was there in the 1830s and started painting these oils of what ancient Egypt would have looked like. I printed them, and when I walked into Michael Hanan's office, they were all over his walls. It was nice to see that we had come to share the same points of inspiration for the show's vision.

"David, Spike and [production





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Top: Blackmagic Pocket Cinema Cameras were used to capture shots amid action sequences. Bottom: Cinematographer Chris LaVasseur contemplates a shot.



company] Muse stressed that they didn't want *Tut* to look like *Game of Thrones*," LaVasseur continues. "They didn't want a dark, desaturated, gloomy look. They wanted a bright, colorful look, especially in the costumes [designed] by Carlo Poggioli."

Given the remoteness of the location and the enormity of certain exteriors, the cinematographer explains, "when we did the big wide shots, we'd let [the lighting] go, and used available light. [For closer shots] it would be difficult to use a flyswatter overhead, so when I could, I would send a 20-by-20 [with] a double net and a Light Grid up on large stands — the net takes the intensity and the Grid softens the light. You pick and choose your battles. Obviously, the end goal is to ensure that the actors look good!"

LaVasseur and Von Ancken made an early decision to use a rougher, less-polished style in the desert, to contrast the chaos of the outside world with the more controlled

environment of the palace, which was built in Dino De Laurentiis' CLA Studios. "When we shot in the desert, it's a bit rough, and most of the time we went handheld," says LaVasseur.

"I tried to make the palace scenes slicker," he continues. "Everything's stable. I mostly used real flame when I was [shooting close-ups], and I'm a sucker for big light sources. I like book lights. Typically, I'll bounce a 2K Zip light into a 12-by Ultra-bounce, softened with a 12-by Light Grid in front of it, right out of frame. I'll use that light as a wrap and let the other side fall off on the dark side. I don't use that much fill." Inside the palace, LaVasseur used ¼ CTO gel to match tungsten lighting to practical flame and, he says, "when we timed it, I took the orange out just a little bit." For outside the palace, Lee 117 — a greenish-blue gel — was applied to "moonlight" sources in order to contrast with the firelight.

LaVasseur's lighting package was split into provisions for either day or night shooting. "For the night package, we had six Maxi-Brutes, six Mini-Brutes, four 10Ks, four 5Ks, and an assortment of 2Ks, 1Ks and Inkies," the cinematographer details. For large-scale day exteriors, though, LaVasseur says he "had to fight for two Arrimaxes if I wanted to fill in the actors in order to compete with the intensity of the Moroccan sun." For one courtyard scene, he "blasted them right in [the actors'] faces through Light Grid. I don't like doing that; I didn't want to make [the cast] uncomfortable, but I wanted to see their eyes."

At press time, *Tut*'s final grade was about to commence with colorist Scott Klein at Technicolor in Los Angeles, where the trailer had been finished on Quantel's Pablo system. LaVasseur was scheduled to have a mere four days to supervise each two-hour episode. "I'll set up day exteriors, night exteriors — very broad strokes," he says. "Then they'll do a match, and I'll take a look at it."

Upcoming work for LaVasseur includes the series *Unforgettable*, a crime drama for A&E about a woman with a photographic memory. "[I've done] shows like *Nurse Jackie* and *Hostages*, so when the opportunity to photograph *Tut* arose, it was the perfect chance to shoot something different on a much grander scale. It was a very special project for me. If we did this in America, it would have been 30 extras, but it was like a DeMille movie — we had a thousand extras, it wasn't greenscreen, everything was real. Even on the back lots at the studios, there were people walking around with camels. It was like I was transported back to 1950." The viewing audience, of course, will be transported back rather further than that.

## TECHNICAL SPECS

1.78:1

Digital Capture

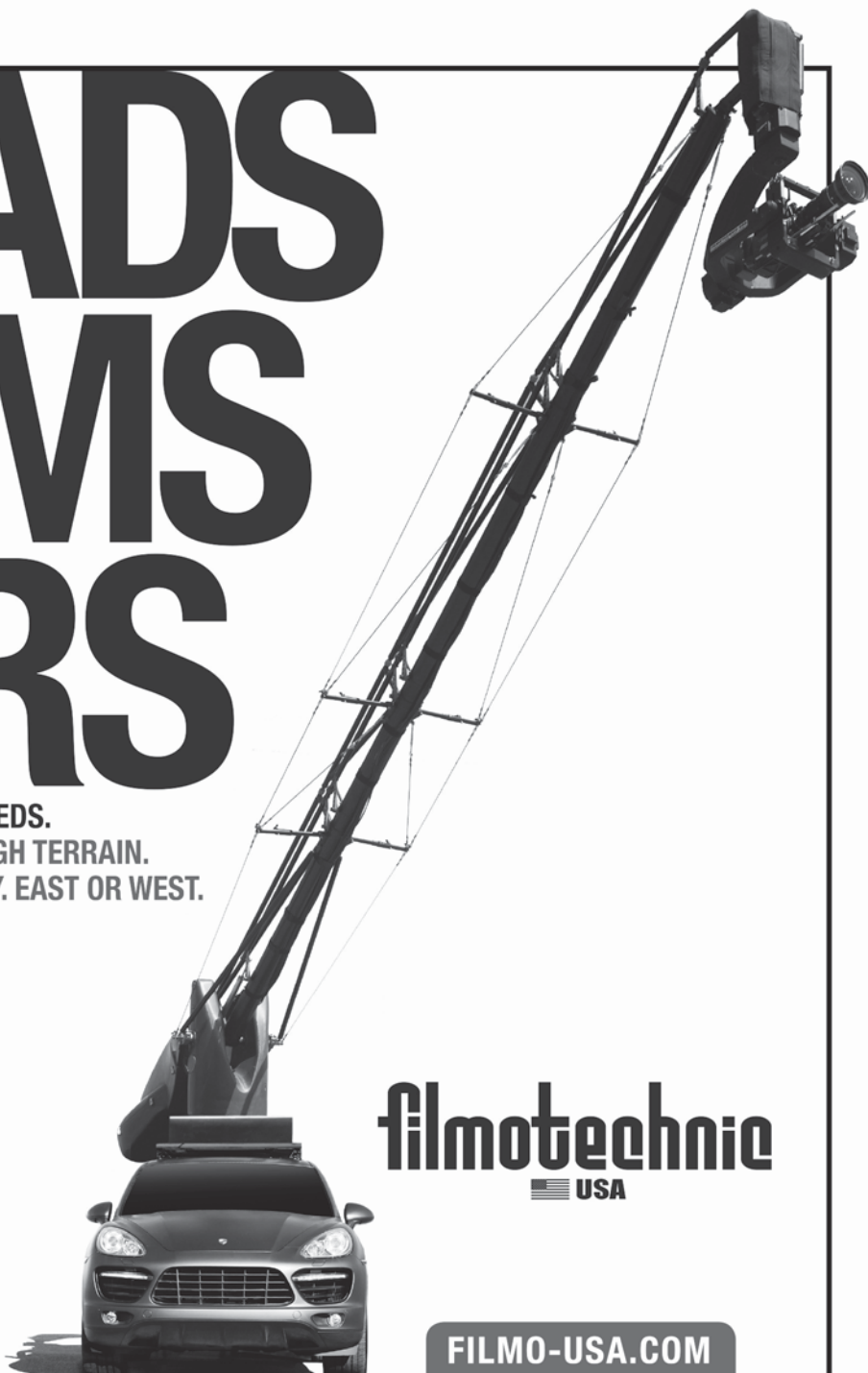
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A full-page background image showing Tom Cruise in a dark suit hanging from the wing of a large aircraft. The aircraft is flying over a green, hilly landscape. The wing has several oval-shaped windows or vents. The overall tone is dramatic and action-oriented.

# Going Rogue

Robert Elswit, ASC details the production of *Mission: Impossible – Rogue Nation*, his second foray with the franchise.

By Michael Goldman

•|•

Ethan Hunt (Tom Cruise) and his handpicked team of associates from the Impossible Mission Force must once again face down seemingly insurmountable odds in *Mission: Impossible – Rogue Nation*. Behind the scenes, cinematographer Robert Elswit, ASC was likewise tapped for a return to the field after shooting the previous installment in the long-running franchise, 2011's *Mission: Impossible – Ghost Protocol*. Christopher McQuarrie, who wrote and directed *Rogue Nation*, had worked on the script for *Ghost Protocol*, so, as Elswit explains, “we had worked together indirectly on the last movie.” Between McQuarrie and producer-star Cruise, Elswit adds with a chuckle, “I guess they just decided it would





Opposite and this page, top: Impossible Mission Force agent Ethan Hunt (Tom Cruise) returns to action in an effort to take down the shadowy organization known as the Syndicate in the feature *Mission: Impossible – Rogue Nation*. Bottom: Cinematographer Robert Elswit, ASC (right) checks the lighting on actor Jeremy Renner.

be nice if I would shoot this movie.”

The filmmakers’ challenges on *Rogue Nation* included the need to begin shooting the story’s action set pieces even before the final script had been completed, as well as finding ways to viscerally — and safely — showcase the stunt work that Cruise would perform himself. The production also called for its fair share of globe-trotting, with key sequences being photographed in the U.S., the U.K., Morocco and Austria. Elswit recently spoke with *AC* about the adventure of making *Rogue Nation*, and in separate interviews, 1st AC Erik Brown, key grip Chris Centrella and gaffer Lee Walters further detailed some of the particulars the team had to tackle. Following are highlights from those conversations.

**American Cinematographer:**  
**What led to the decision to shoot *Rogue Nation* predominantly on film?**

**Robert Elswit, ASC:** The entire movie was shot on film, except for one complex underwater sequence, and the



primary reason was because Tom and Chris just don’t like the way digital capture looks all the way through to the final product. [In particular,] Tom Cruise — and it was really his choice — doesn’t like the way [digitally acquired material] looks in digital projection, even when you put a film curve on it. All the systems have a kind of quality,

though subtle, that Tom just doesn’t care for. He won’t do it until they run out of film or nobody can process it anymore. He’s a traditionalist, and he doesn’t think [digital capture] is an improvement beyond workflow; it’s not an image-quality improvement, from his point of view.

I was happy with the choice. The

# Going *Rogue*

The crew captures an action sequence with Cruise on an Airbus A400M military plane.



only movie I've shot substantially [digitally] was *Nightcrawler* [*AC* Nov. '14], and even there I ended up shooting all the day work on film, because I didn't feel I was experienced enough [with digital cameras] to handle the extreme contrast range of shooting on a beach. We had wonderful stocks available from Kodak [for *Rogue Nation*], and what we ended up with was quite remarkable and pretty consistent when they scanned the negative and we went to a DCP or a DI room [all at Company 3 in London], especially since we were shooting anamorphic. [The negative was processed at i dailies in London.]

**Erik Brown:** The main-unit camera package consisted of three Panavision Millennium XL2 bodies — A, B and Steadicam — as well as an Arri 235 and 435 for some rig work and any high-speed shots. The bulk of the picture was shot on two Kodak [Vision3] stocks: [200T] 5213 and [500T] 5219. Robert prefers to shoot in daylight conditions without an 85 filter and correct in the transfer, and we used minimum filtration in general — usually just neutral-density filters during day exteriors.

**Which lenses did you pair with those Millennium XL2s?**

**Brown:** Robert chose to go with



the older Panavision C Series anamorphics — with a few contemporary tweaks made to them — feeling they would be perfect for the classic movie look that he and Chris McQuarrie were aiming for. They are relatively small and lightweight, which is great when doing handheld or Steadicam, or when you need to make the camera as small as possible for tight spaces.

Our goal was to put together two sets of C Series anamorphic primes, one for A camera and one for B camera. We wanted them to be as matched as possible with an inherent look best described as neutral, not biased toward being warm or cool, so that cutting between the different cameras and shots would require [minimal help in post]. This was not an easy task with the C Series lenses, which were hand-assembled and are all uniquely individual, unlike contemporary lenses that all meet exacting manufacturing and optical standards. It was also difficult to put two sets together due to the high demand for Panavision's anamorphic lenses. We owe a huge debt to [ASC associate] Lori Killam, our marketing rep, for sourcing and scheduling the lenses for us; to Dan Sasaki [ASC associate and Panavision's vice president of optical engineering], for putting our lenses together; and to Charlie Todman and his outstanding crew at Panavision London, who did all our servicing and camera support throughout the production.

Dan modified several of the middle and longer focal lengths to focus 6 inches to a foot closer than their normal minimum focus. He also made sure that all the front elements of our C Series lenses had modern lens coatings, as we were often looking into the sky or bright backgrounds and we wanted to minimize the veiling, halation and flaring that would often happen in those situations with the original C Series coatings. Also, due to lens-availability issues, Dan ended up hand-building several of the lenses for us, and the end result was both technically and visually fantastic. Dan also provided other modifications for us [including the



Top: Crewmembers get a wide shot of the plane on the runway. Middle: The plane takes to the air, with Cruise still hanging on outside. Bottom: Cruise braces for action.





# Going Rogue



Elswit (bottom) and crew work out an extended chase involving motorcycles and a BMW sedan.

creation of a 25mm lens that had the optical qualities of the C Series but was smaller and had minimal barrel distortion, and the modification of a 60mm lens, which Elswit often used for inserts, to allow it to focus to 17 inches].

We also carried a full set of G Series anamorphics. [One reason for that] was in case we didn't have enough glass if we added extra cameras or a splinter unit was assembled on short notice. The second reason was safety. If we had a shot where we were concerned that a lens might be damaged, we would do that shot with a G Series lens, since those are [more easily] replaceable — although I don't think we damaged any lenses on main unit. We also carried several zooms [including AWZ2 40-80mm (T2.8), ATZ 70-200mm (T3.5) and ALZ11 48-550mm (T4.5)], but used them sparingly.

**How would you define the 'classic movie look' you wanted for the film's visual aesthetic?**

**Elswit:** We tried to do what anamorphic lenses classically forced you to do — a classic style of wide shots, medium close-ups and close-ups, like traditional filmmaking. But what really ends up driving it is that this is a movie-star movie. It presents Tom and the other actors in a more traditional way. It's the opposite of a *Bourne* movie; we're not looking at them with long lenses, fast cuts and whip pans. We wanted a kind of strong, heroic, romantic style, [as evidenced with] the Vienna Opera House sequence. There is a stylish gloss or sheen to it, kind of a throwback to the first *Mission: Impossible* film [directed by Brian de Palma and shot by Stephen H. Burum, ASC; *AC* June '96].

It's an idealized world, but the magic is to try and not call attention to that fact, to make it not feel self-consciously lit or stylized. It's the approach Roger Deakins [ASC, BSC] was so good at in the last Bond movie [*Skyfall*; *AC* Dec. '12]. It looks completely realistic and authentic, and you believe in the world you are looking at. That is what I mean by 'classic,' but it's a modern approach to that idea.



**You referred earlier to the complex underwater stunt sequence. As I understand it, in the story, Ethan Hunt has to steal a hard drive from a submerged chamber. Please describe the stunt, and tell us how you shot it.**

**Elswit:** The idea is that there is this secret chamber, sort of shaped like a giant donut — that is to say, about 100 feet in circumference, and 20 feet tall and round. Ethan has to dive into it, and he can't have anything metal on him or he will be detected, so he has to hold his breath. We built the parts of the set that he touches, and the rest of it was actually all greenscreen [in a tank at London's Warner Bros. Studios, Leavesden]. But, of course, Tom insisted on doing the stunt, and he actually holds his breath — although obviously not really for three minutes straight. We broke the shots up so that there were ellipses and ways to have him go in and out of things so that it appears he is actually doing it straight. It was a very complex scene to put together, specifically arranged around an animatic based on storyboards.

We chose to shoot with the new Arri Alexa 65 large-format system, since we knew there would be an Imax presentation, and with all the visual effects involved we needed a camera that could give us a really huge and beautiful digital file. [Underwater director of photography] Pete Romano [ASC] came to London for about a month and a half just to do proof of concept, to help us see if the shots in the animatic could be achieved.

Pete helped us figure out how to shoot the sequence, for the most part, with transferred motion — the same kind of thing they did with the rocket ships on *Star Wars* [AC July '77]. In the sequence, Ethan swims the entire circumference of the underwater chamber, does flips and spins, almost gets knocked over, gets pulled in certain directions, and finally appears to inhale some water before Ilsa [Rebecca Ferguson] saves him. The only way we could make them appear to move through space and manipulate them

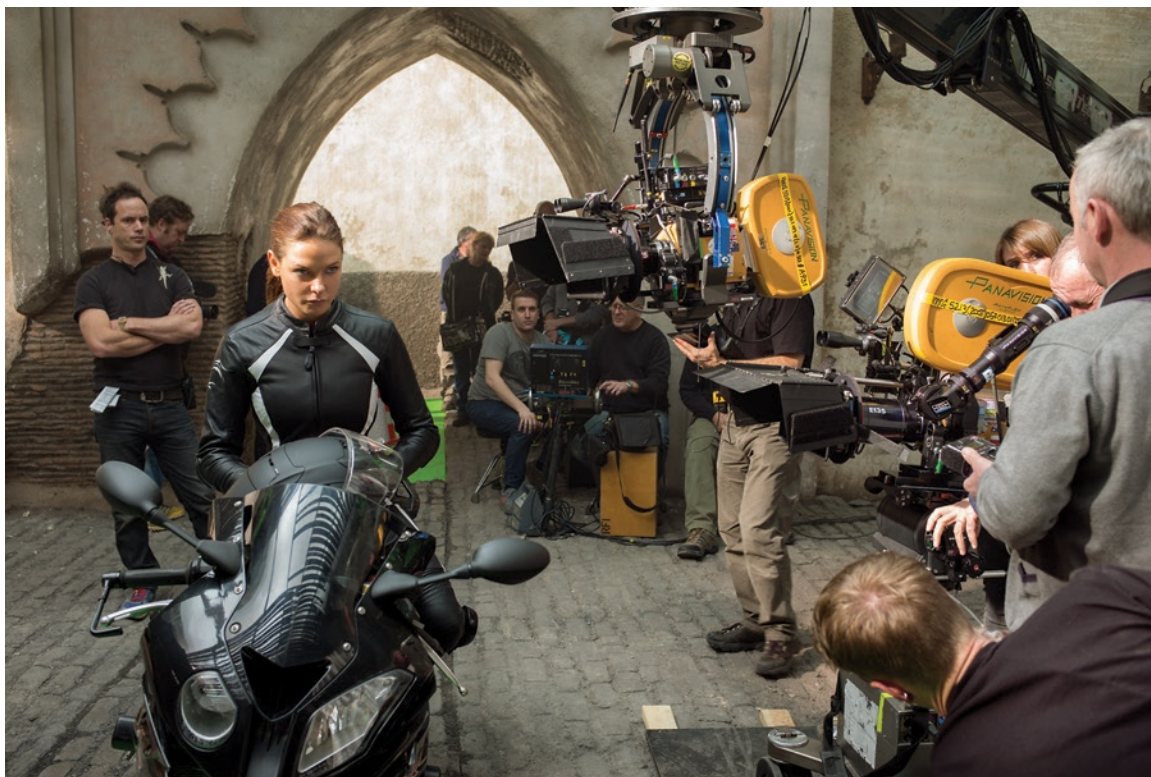


**Top and middle:** The production employed a number of rigs to capture the vehicular action. **Bottom:** Director Christopher McQuarrie (left) discusses the sequence with actors Simon Pegg and Cruise.



# Going *Rogue*

Multiple cameras are put into position as actor Rebecca Ferguson prepares for her motorcycle work.



with any real control while they were literally holding their breath underwater was to do it with transferred motion: We transferred movement from the camera to the stationary actors so that Tom appears to be flying through the space. Sometimes he actually is, but often he is only moving a few feet against the camera, which is actually creating the sense of motion

against the greenscreen.

**Chris Centrella:** The camera movements had to be very precise to match the previs, and the camera platform needed to be stable enough so that the visual-effects department could build the CGI environment and I would be able to repeat the moves in a way that was organic enough to match Tom's variables as much as possible.

That meant no free-diving [with the camera]. In addition, several shots required the camera to move as much as 6 feet per second. Working with [special-effects supervisor] Dominic Tuohy, we developed a rail system that we bolted to the floor of the tank, allowing us to move the camera at those speeds underwater.

For the entire underwater shoot, I used a modified Grip Factory Munich GF-16 crane with a [remote] HydroHead, carrying the Hydro housing with the Alexa 65. Because of the depth Tom was working at [12 feet] and the set pieces designed for the tank, we rigged the GF-16 with a 15-foot camera drop-down. That allowed the crew on the surface [to achieve] precise, linear moves that were repeatable for the numerous rehearsals involved in fine-tuning each shot. Some shots required the four-man crew to move the camera 30 feet and incorporate a 10-foot boom at full speed, mere inches from Tom's head, using only laser marks and monitors. [The Alexa 65 shot ArriRaw to internal Codex drives.]

**Gaffer Lee Walters tells us you**





Ilisa (Ferguson) rescues an imprisoned Hunt.

lit the tank primarily with underwater LEDs integrated into the set, all of which were cabled to ultra-low wattage LED drivers connected to a central GrandMa2 lighting console that enabled instantaneous control from above the surface.

**Elswit:** Again, in the story, it is supposedly a huge cylinder that has water moving through it at high speed. Nobody is supposed to go down there, so, creatively, why would there be lighting down there? We had to come up with some sort of ambient light that appeared to come from the electronics down there. Most of the time, Tom was in a harness manipulated by the big arm, and they were twisting and dragging him, so we lit him from particular directions to throw shadows all over his body. In figuring out how to do that, it just made sense to put everything down low [below Cruise], and we also ended up using [prototype underwater LED tubes, designed and supplied by Ricky Miller from Arri], which we sped along the axis of movement, along the circular

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# Going *Rogue*

Cruise and the crew tackle a night exterior in London.



travel of the camera and the arm that was moving Tom and Rebecca back and forth. [HydroFlos were used to light the greenscreen backings.]

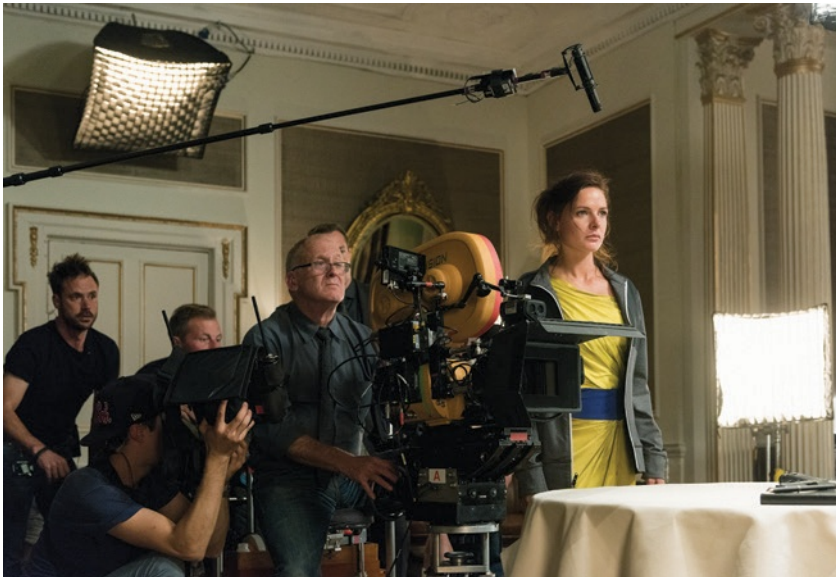
Beyond the underwater scene, Walters tells us you frequently built LEDs into sets and used 500-watt, 650-watt and 1K Tiffen Rifa 88s for a soft backlight effect. He also

mentions that, for major nighttime stunt sequences, you relied heavily on two 24K tungsten Fresnels to bounce light into 20-by-12 bleached muslin, and for day scenes you would replace those lamps with Arrimax 18Ks. How would you describe the movie's overall style of lighting and camera movement?

**Elsuit:** We didn't want it to feel overlit, but at the same time, everything is lit so that the actors look good, even in stressful situations. In that sense, although the lighting was scene-dependent and location-dependent, it was also Tom Cruise-dependent. Whenever his character walks into a room, we try to make the viewer understand the space he is in. Usually that means the space is not flatly lit — it has just a little bit of shadow and a little bit of contrast. You want to feel what his character is feeling. Everything revolves around imagining what is going on with his character.

Beyond that, there are different worlds — Casablanca, London, Vienna, D.C. — and for each location, there are extreme contrasts in the quality of light. It depended on the place, the architecture. We went with what was there automatically — in that sense we didn't have to create anything. There aren't really any sunny days in the movie until we get to Casablanca; that part of the movie feels contrasty and harsh, and we ended up blowing out highlights more and making it feel less controlled, like they really were in an exotic loca-





Elswit frames the action for an interior scene with Ferguson.

tion. I didn't want it to feel like we had an arc up, hitting people in the face, balancing the light. It's a little bit rougher than that. We also didn't want to feel like we were on a back lot, even when we were on a back lot for certain scenes.

Vienna was more elegant and stylized, colder and darker, more romantic — that is the location where we finally meet [Ferguson's character], and where we have another complicated action sequence backstage during a performance at the Vienna Opera House. That's the most theatrical look in the movie, because we mainly use spill and direct lights from the opera on stage, which was fun to play with.

As far as camera movement, Christopher really wanted a lot of movement and energy — lots of Steadicam, lots of handheld. He wanted to emphasize camera movement, but have it grow out of whatever the staging and blocking was, to add another level of energy. There aren't many moments where people are standing still.

**Lee Walters:** For the Vienna Opera House, we used more than 40 24Ks fitted with high-sodium filters on top of every corner of every surround-

ing building rooftop; they were all wirelessly controlled by a pad on set. We had a lighting designer help in using LH2 [Studios] in London to re-create the interior lighting of the opera, with moving lights, Source Fours and floods.

**Did all the complexities make it difficult to pull focus?**

**Brown:** It was challenging on several fronts. Since it was a film show, there was no instant digital gratification of knowing a shot was in focus, so I was quite eager for lab and transfer reports every morning. You have to know your lenses, and know they are calibrated accurately, because you're actually using the lens scales. And then, anamorphic lenses are more difficult with regard to focus than spherical, because of the inherently shallower depth of field. They look beautiful, but it comes at a cost to the focus puller. We were often just off wide open for much of the stage work and all of the night work.

Many of the action scenes took place in locations that made it impossible to use a tape measure or get any reference marks — backstage at an opera, where most of the action takes place off the ground, on moving trestles and in towers; underwater; outside of flying airplanes; car and motorcycle

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# Going *Rogue*



A Filmotechnic Russian Arm on a Mercedes ML63 rolls into position for the Airbus sequence.

chases, etc. And the camera was rarely static. Whether on a dolly, slider, car mount or crane, and whether an action scene or dialogue scene, the camera was usually in motion. As a result, I relied heavily on the Preston remote-focusing system, as it was often impossible to physically put my hand on a focus knob.

But perhaps the single biggest focus challenge was due to the fact that Tom Cruise doesn't like to rehearse. More often than not, his first line when he got to set would be, 'You guys ready? Let's shoot!'

One of the film's highlights is the sequence in which Ethan Hunt finds himself clinging to the outside of an Airbus A400M military plane as it takes off. Once again, Tom Cruise performed the stunt himself. How was that filmed?

**Centrella:** Tom was adamant that he do the stunt, and so he, Robert and the director agreed that the best way to achieve this was by filming the

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sequence in one shot. The sequence begins with his character sliding down the fuselage of the plane and clutching onto the parachute door as it takes off. We used the 50-foot Technocrane with a Libra head for stabilization to film Tom sliding down the actual plane, and then the next cut began the single shot. It goes without saying that working in this environment required extreme safety; we needed permission from Airbus to [meet their safety standards].

To facilitate camera placement, a rig was designed to extend through two port windows so we could place the camera along the fuselage. I used a Gyron Super G [gimbal] for stabilization, and the [Gyron team] was helpful in extending the speed-rating envelope for which the head was rated. Robert really wanted to use thousand-foot mags, and the head performed perfectly.

**Elswit:** The rig was really a giant piece of steel that essentially poked out the two windows in the side of the fuse-

lage, and it supported the camera, which was in that great [Gyron Super G] aerodynamic housing — a giant pod that allowed us to pan and tilt. There was a truss and superstructure inside the airplane, and then Tom was wearing a vest with a number of cables that went through a window and the power door, and that is what locked him to the side of the plane so that there was no possibility of him falling off.

Just having Tom do such stunts himself creates a set of issues. You have to shoot it in such a way that the audience knows it's him. So there was a really close [coordination] with second-unit director Gregg Smrz and stunt coordinator Wade Eastwood.

*Editor's Note: James Slattery at Company 3 London worked in Blackmagic Design's DaVinci Resolve 11 to color all of Rogue Nation's dailies, for which Company 3 scanned the negative in 2K on a Spirit 4K, then down-rezzed the files to HD as DNx115 Avid media that was sent*

*to editorial via Aspera. Later, for visual-effects vendors and the final grade — the latter of which, at press time, was about to begin at Company 3 London with Resolve 11 — the facility scanned the negative to 2K 10-bit DPX files with an Arriscan. ●*

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# Macro Heroics

Russell Carpenter, ASC and a team of collaborators stage big action in small spaces for the superhero movie *Ant-Man*, directed by Peyton Reed.

By Noah Kadner



The Marvel Cinematic Universe is constantly expanding with the addition of multiple interlocking movies per year. Its most recent growth spurt marked the entry of the decidedly diminutive hero of *Ant-Man*, directed by Peyton Reed and shot by Russell Carpenter, ASC. Based on the adventures of the size-shifting comic-book hero of the same name, *Ant-Man* tells the origin story of Scott Lang (Paul Rudd), a low-level San Francisco Bay Area thief who gets taken under the proverbial wings of entomologist-physicist Hank Pym (Michael Douglas) and his daughter, Hope Van





Opposite and this page, top: Low-level thief Scott Lang (Paul Rudd) becomes the superhero Ant-Man after getting involved with entomologist-physicist Hank Pym (Michael Douglas) and his daughter, Hope Van Dyne (Evangeline Lilly). Bottom: Cinematographer Russell Carpenter, ASC lines up a shot.

Dyne (Evangeline Lilly). Pym aims to pass his miniaturization and insect-control technology to Scott while keeping it from the clutches of Darren Cross, a.k.a. Yellowjacket (Corey Stoll).

Behind the scenes, *Ant-Man* encountered a major challenge when its original director departed over creative differences and was replaced by Reed just three months before shooting began. "I had come in a couple of years earlier with an elaborate pitch on *Guardians of the Galaxy*, which ultimately went to [director] James Gunn," reveals Reed. "I've also known [Marvel producer] Kevin Feige for over a decade. I grew up on Marvel comics, so I knew this character inside and out. And I saw the development materials and visual-effects tests, which all really blew me away."

With Reed onboard, the next step was to quickly secure a director of photography. "Russell is a genius cinematographer who had great things to say about the light play and the visuals that would be possible if we were really working down at a macro scale," Reed says. "There's a long history of shrinking-character movies, from *The Incredible Shrinking Man* to *Honey, I Shrunk the Kids*. Russell was like-minded that we could make *Ant-Man* the 2015 version



of the genre and be as photo-realistic as possible by avoiding the oversized-prop look of many of those earlier films."

Carpenter had previously dealt with a scaled-down character in the family-oriented fantasy *The Indian in the Cupboard* (AC Aug. '95). Having also shot *Titanic* (AC Dec. '97) and *True Lies* (AC Sept. '94), the cinematographer is no stranger to complex action, either, and prior to *Ant-Man* he was looking to return to the genre. "I was doing indie films and just finishing up a low-budget feature in India called *Parched*," he says.

"I told my agent it would be really fun to get back into big action movies. At the same time, Marvel was changing directors on *Ant-Man* while planning to stick with its original summer 2015 release schedule. Peyton came in on short notice and brought me in a week later with a very compressed preproduction schedule. So we both had to put on our Nikes and hit the ground running."

The production shot on location in San Francisco and on stages at Pinewood Studios in Atlanta, Ga.; principal photography lasted from August

# Macro Heroics

Top: Pym discusses his miniaturization and insect-control technology with Lang. Bottom: Lang inspects his new wardrobe.



through December 2014. Core members of Carpenter's crew included 1st AC Jeffrey Civa, B-camera 1st AC Sean Moe, digital-imaging technician Rafel Montoya, DIT/data-management supervisor Kyle Spicer and chief lighting technician Len Levine. Carpenter shot *Ant-Man* using Arri Alexa XT cameras supplemented with an Alexa M compact body for tight quarters. He captured Open Gate ArriRaw to Codex digital recorders for an eventual 2K, 1.85:1 release. Panavision Woodland Hills and Panavision Atlanta supplied

the Alexa bodies.

ASC associate Dan Sasaki, Panavision's VP of optical engineering, helped Moe handpick the production's set of Panavision Primo V prime lenses. The lens package also included Panavision Primo 15-40mm T2.6, 19-90mm T2.8 and 24-275mm T2.8 zooms, as well as an Angenieux Optimo 28-76mm T2.6 zoom — and, as Moe notes, “a beautiful 12mm Panavision lens modified to work with the Open Gate cameras. Sasaki also modified a P+S Technik Skater Scope with a PV mount

and supplied some lightweight Panavision Super Speeds — 14mm to 50mm. The Skater Scope was instrumental in providing many of the hard-to-reach Ant-Man angles.”

A-camera operator Peter Rosenfeld made frequent use of a Talon repeatable remote head from Pacific Motion Control, and a special four-camera Alexa circular array captured certain shots that required an expanded field of view from Ant-Man's perspective as well as exterior San Francisco background plates.

To help define *Ant-Man's* overall look, Carpenter first reviewed the previous films in the Marvel canon. “I was looking at pretty much everything starting with the *Iron Man* movies,” he recalls. “I really liked the look of *Captain America: The Winter Soldier* [shot by Trent Opaloch], so we got the LUT used on that production and tested it with the Alexa. I fell in love with the way it took the bite out of more strident colors like red, compared to how they looked in real life — in particular, I knew it would help with the rendering of the Ant-Man costume. I made a few minor modifications to how the blacks and shadow details were represented, and we had our LUT.”

To provide consistency for the





Top: This concept art illustrates the action for a bathroom scene. Bottom: Lang prepares to get down and dirty with the surface of the tub.

applied LUT across the array of on-set monitors, Montoya and Spicer deployed Fujifilm's IS-mini digital color-adjustment device for both image preview and monitor calibration. Michael Bulbenko, Fujifilm North America's marketing and sales development manager, explains, "In the cinema workflow, you're sending Log directly into the IS-mini, then you tell the software which camera you're using — the IS-mini has all the cameras available as presets. Next, you build up the initial conversion LUT as a 26-sided 3D cube in the color-correction window. Finally, you apply monitor calibration on the back end — a process designed to be painless and simple, and that has been proven to be extremely accurate. It's as color-managed and consistent a picture as is currently possible across different monitors and cameras. You can also export the onset LUT or a CDL to share with the dailies and DI grading teams."

To capture the unique perspective of a half-inch-tall character, cinematographer Rebecca Baehler led a macro unit that shadowed Carpenter's main unit throughout production. Baehler used Alexa XT and Vision Research Phantom Flex4K high-speed cameras to capture macro-environment plates for *Ant-Man's* miniature action scenes.



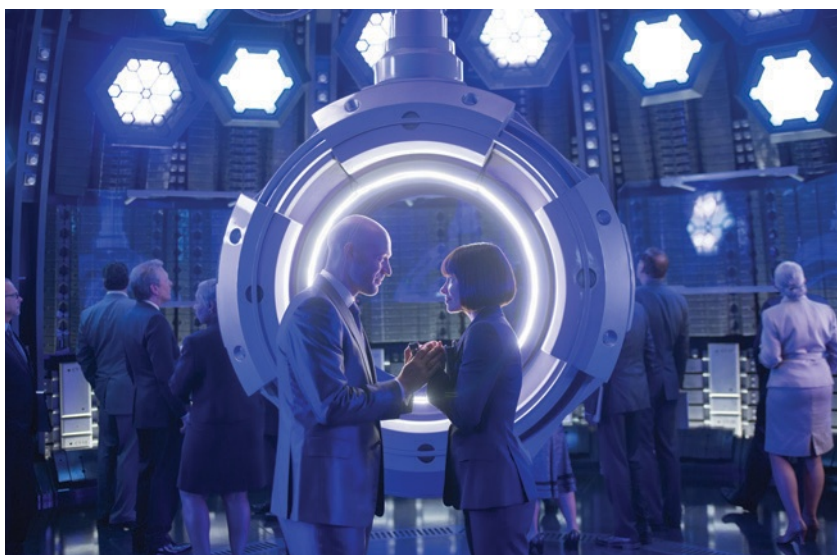
"Russell and Peyton wanted to photograph the macro portions with real sets and live action, so they called my agent looking for a macro, motion-control and tabletop-photography specialist," says Baehler. "We used the Alexa and the Phantom with Milo and Bolt motion-control rigs and the Frazier Lens System. The Frazier is a periscope/mirror tube that can get very close to surfaces and rotate 360 degrees. We shot with lenses ranging from 17mm to 50mm. At 17mm you can get

super-close macro and still keep the background in focus; at 50mm you can get shallow focus practically on just the head of a pin. We also used a 100mm macro — as well as the Primo Macro Zoom 14.5-50mm [T2.2], but the bulk of the work was with the Frazier Lens System."

"[The production used] custom-built pieces specifically made for macro unit," says visual-effects supervisor Jake Morrison. "They were 1-to-1 scale of the real sets, but had significantly more

# Macro Heroics

Top and middle:  
Van Dyne  
encounters  
Darren Cross  
(Corey Stoll),  
who militarizes  
Pym's  
technology for  
use as the villain  
Yellowjacket.  
Bottom:  
Carpenter  
examines the  
lighting in the  
Pym Tech lab set.



detailing. As the level of scrutiny that the stills cameras achieved was so high, the sets and props on the macro sets were built using real items — i.e., a set with rusty water pipes had to be created using salvaged pipes, not fresh pipes that were dressed to look ‘older.’ Jann Engel, macro art director, was responsible for putting together these macro sets for us.”

“Many shots featured pyrotechnics, particles and liquids, so we frequently went up to 1,000 fps on the Phantom, blasting the set with 20Ks,” says Baehler. “We had complex shots where [in the final composite] you see Ant-Man running through a tube, and [for the plate] we’d flip the Frazier upside down and twist in the middle of a take — it was very aggressive and dynamic. We also handled simpler shots where Ant-Man is supposed to be running across a workbench, for example, and we lit the workbench with a little LiteGear LiteRibbon or even LED flashlights.” Baehler matched her motion-control shots to the extensive previs and also shot variations to provide more flexibility in post.

Several of the film’s early scenes take place within Hank Pym’s mansion, which was constructed onstage at Pinewood. Levine lit these interiors with a combination of practicals, Source Fours, Par cans, and Chimera strip banks





**Top:** Lang communicates with an ant.  
**Bottom:** Lang resurfaces from the ant's subterranean abode.

warmed up with Rosco CTS gels. To simulate ambience coming from outdoors, Levine aimed Maxi-Brutes and additional Par cans through the set's windows.

Pym's mansion includes a large control room where Hank reviews various activities on a phalanx of computer screens and TV monitors. "Michael's character's glasses were a reflection challenge," notes Levine. "We went with the monitors as a source to provide a natural reflection and augmented with small, homemade LED light cards made with LiteGear parts. There was an overhead fluorescent box to anchor the room with a bright spot in the middle; it switched on with a bit of a realistic delay when a character turned on the lights. We filled in the rest with Kino Flo VistaBeams, often handheld to follow over-the-shoulder shots."

Another key location was the Pym Tech lab, where Cross has militarized Pym's technology into the deadly Yellowjacket costume. Carpenter wanted the set to emanate a tangible energy. "I loved [production designer] Shepherd Frankel's concept that the lighting was integrated into the architecture of the laboratory," notes Carpenter. "We used high-intensity, narrow-spectrum blue tubes in Kino Flos to create a super-blue, radiant light, and all of that was built into



the glass walls and surfaces of the lab."

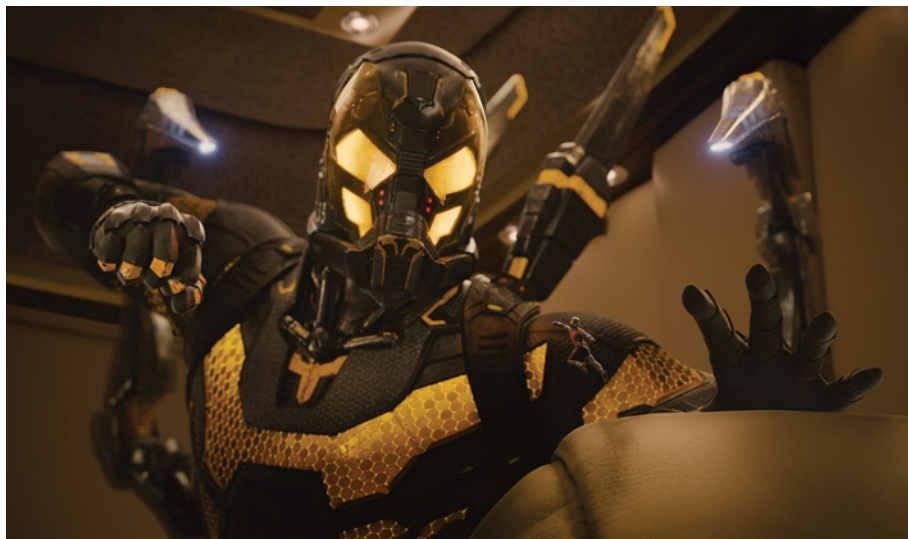
In another section of the lab, Levine rigged Chroma-Q's Color Force RGBA LED battens to pulse behind honeycomb-shaped fixtures built into the walls and ceilings. "We had 280 dimmable 4-foot LiteGear xFlos overhead," explains Levine. "On the back walls, we used ladder lights, which are 4-foot MacTech tubes suspended in air. We did 14 rows of them at 4 feet each and 20 tubes high. Those were also dimmable and very punchy."

Due in part to the highly compressed production schedule, Carpenter relied on the Pix digital dailies system to review each day's footage on a secure iPad. "You know

you're not getting near the same level of detail you would [with projection]," the cinematographer laments. "But, surprisingly, it looks great and works very well for review."

Morrison kept track of shots that were split across several vendors, with the bulk of the work going to Industrial Light & Magic, Double Negative, Method Studios and Luma Pictures. "There are approximately 1,600 visual-effects shots in the movie — which is actually modest by modern blockbuster standards," says Morrison. "But each shot is a lot more complex than the norm. It's not like [a shot of] Thor, for example, where he flies into a shot to deliver a line, and for the first 20 frames

# Macro Heroics



Top:  
Yellowjacket  
takes aim at a  
shrunken-down  
Ant-Man.  
Bottom: Lang  
dispatches a  
coterie of  
henchmen.



or so he's CG and then the rest of the shot is mostly live action. Nearly every shot with little Ant-Man is CG.

"Early on in the process," Morrison continues, "we discovered that no matter how small the lens was, or how close we got to a surface, the resulting photography looked like a crane shot when we placed Ant-Man in there. As Ant-Man is only 0.5 inches, a lens with the entrance pupil 6 inches above the deck reads like a Supertechno 30. We actually ended up referring to our motion-control passes as 'macro aerial plates'! The magic of Rebecca's photography was that even if a macro set was re-created within the computer, we were able to give the visual-effects vendors the motion-picture footage as an absolute guide so there would be no question of

the photo-reality of the results."

Double Negative was charged with creating the main 3D model assets for Ant-Man and Yellowjacket, as well as capturing macro environments for later animation by all vendors. "We were embedded into the macro cinematography unit with three Canon 5D Mark III DSLR cameras and Canon 100mm USM macro lenses [f2.8] mounted on [Clauss Rodeon Pixpert] robotic pan-and-tilt-heads," reveals Alex Wuttke, visual-effects supervisor for Double Negative. "We shot a huge amount of raw stills at a variety of different exposure and focus brackets. We also did Lidar scans and Mephisto-structured light scans for set and prop geometry, and HDRI probe passes to capture the on-set lighting.

"We shot many sequences cross-polarized to extract specularities from the underlying diffuse nature of the surfaces," Wuttke continues. "We put polarizing gels onto the lights and cross-polarizing filters on the lenses, then used the repeatable Rodeon head to shoot with and without the polarization. From those vast amounts of data, we used Jigsaw, our proprietary image-stitching tool, to generate huge panoramas of up to 20K resolution for sets that measured as little as 60 centimeters across. We'd use the focus bracketing to render them infinitely sharp and then send the completed panoramas to the other effects vendors for use in all of the macro sequences."

Luma Pictures handled a number of different macro sequences, including one toward the film's climax set in a computer-network server room. "Ant-Man is flying around and scraping very close to many different surfaces, which was an incredible amount of detail to partition out," describes Vince Cirelli, visual-effects supervisor for Luma. "Take a computer keyboard and desk, for example. From a typical perspective, it's a handful of objects and their textures. But at the macro level you have all the dust and grime and additional pieces of geometry all over each item. Those texture data and assets get multiplied over hundreds of surfaces and thousands of objects in the server room.

"The [completed] movie has probably some of the highest volume of object-asset work seen in films today," he adds. Cirelli's teams modeled in Maya, with Arnold for rendering and Nuke for compositing. Luma delivered completed shots as 2K DPX files onto the production's secure Signiant file-sharing service via fiber channel.

In stark contrast to the grandiose vistas that background most superhero-film finales, *Ant-Man's* climactic battle sequence takes place in Scott's daughter's bedroom, where the hero and Yellowjacket shrink in size to tussle atop a speeding toy train set. Levine lit the compact bedroom set with Chimera Pancake Lanterns, Lowel Rifa eXchanges and a hybrid balloon overhead.

"The train fight is really original,





and the visual-effects teams enjoyed it a lot,” observes Morrison. “These are usually more global-level destruction movies, where you’re tasked to blow up buildings and crack the Earth open. This sequence is really different and revels in the minutiae. We were able to take something as ho-hum as a train set and turn it into this epic macro battle.”

Throughout postproduction, editor Dan Leidental, ACE worked to strike the right balance between *Ant-Man*’s comedy and drama. “I cut the first *Iron Man* with [director] Jon Favreau, which kind of built the ‘MCU mold’ as a mixture of comedy and high character stakes,” says Leidental. “There’s now a tonal gamut running from *Captain America: The Winter Soldier*, a sober political thriller, to the much higher comedy quotient of *Guardians of the Galaxy*. The trick is that a Marvel movie shouldn’t take itself too seriously, but it also shouldn’t laugh at itself.”

Leidental and co-editor Colby Parker Jr. supervised a large editorial team in a room full of Avid workstations networked on ISIS shared storage with DNx36 files in proxy resolutions. “Our work had to be accelerated [due to the director change]; we basically lost 10-12 weeks of postproduction time,” says Leidental. “But the footage really looked amazing, combining Russell’s great



Top: Ant-Man makes his way through an ant colony. Middle: Director Peyton Reed (center) discusses a scene with Rudd on a bluescreen set. Bottom: Rudd prepares for more bluescreen action.



# Macro Heroics

A four-camera Alexa array was used to capture certain background plates as well as point-of-view shots from Ant-Man's perspective.



lighting and the excellent dailies timing. Everything we worked from looked like a fully timed and finished movie.”

As finished visual-effects shots were delivered into Lebental's evolving edit, Carpenter collaborated with Technicolor's supervising digital colorist and ASC associate Steven Scott on *Ant-Man's* DI at the Disney lot. “I love work-

ing with Steve because our approach is all about telling a story, and it runs as much artistic as technical,” enthuses Carpenter. “We'll look at a frame together and go, ‘This is pretty good, but what if we did *this* to push the viewer's attention more and emphasize this character?’

“Here's one example,” Carpenter

continues. “Early in the movie, there's a shot of Scott handcuffed in the back of a police car with the Ant-Man helmet on the seat beside him. We lit up that very small area as best we could on the set. Steve looked at the shot and said, ‘Let's make that helmet more mysterious.’ He took down the reflections in the helmet and gave it some real mystery and flair.

“There's another scene where Scott goes to his daughter's birthday party,” the cinematographer adds. “She's running down the hall [toward Scott], and it's a little dark in the hallway. As she approaches her dad, we just gradually cranked up her brightness in a window, as if the closer she got, the happier she felt. It's very subliminal and a nice little bit of storytelling. I'm not suggesting you should re-light a film completely in the DI, but these little tweaks can help shape the tone as you find the film during post.”

The visual-effects shots from each vendor were graded for consistency and fidelity to Carpenter's original intentions.

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"I think it's incredibly important to respect the director of photography's vision all the way through post," Morrison says. "Right at the start of the post process, we set up a two-day grading session with Russell and Steve to create guide clips for every major effects sequence. Each effects vendor received both the guide clips and the raw DPX [files] with the direction to deliver their completed shots with the guide clip's look baked in. As the finals dropped into the DI, Steve and Russell were extremely happy and said the completed shots looked just like they would have timed them."

*Ant-Man* was produced in 2D and also released in a 3D version dimensionalized by Prime Focus and Stereo D. "Seeing the trailer for the first time in 3D was a revelation to me, because it really helps the storytelling," observes Morrison. "In 2D, when a character is rapidly shrinking, it looks like they're moving away in depth. We built in a lot of action cues and even animated silhouette 'onion skin' trails as the characters miniaturize to help counter their

apparent position shifts. In 3D, you can show precisely where the character is in depth, which makes the action flow really well."

With a brisk year's involvement from inception to release, Reed's perspective on the completed project is highly positive. "It's exceeded what I envisioned, and I'd proudly put Russell's work on *Ant-Man* up there with any of the other Marvel movies," the director says. "This overall experience was a massive learning curve with so many visual effects. I've been blown away by the support of these world-class visual artists and their real creative hunger. As a director you're only going to make a handful of movies during your career. So I really like pushing, and it's a pleasure to find your enthusiasm not only matched but exceeded."

Carpenter also feels the finished work earns its place in the Marvel Cinematic Universe. "When I was first reading the script, my real nervousness

was how it would compare visually to the other Marvel films," Carpenter reveals. "Their canvas is usually so extraordinary. The week before we started filming we had a screening of *Guardians of the Galaxy*, and it was just so mega-large I was terrified. Now that I see it all put together, *Ant-Man* is just as entertaining and amazing as any of the other Marvel movies, and I think it carves out its own niche. That's a good feeling." ●

## ◀ TECHNICAL SPECS ▶

**1.85:1**

### Digital Capture

**Arri Alexa XT, Alexa M; Vision Research Phantom Flex4K; Canon EOS 5D Mark III**

**Panavision Primo, Primo V, Primo Macro, Frazier Lens System, Super Speed; Angenieux Optimo; Canon USM; P+S Technik Skater Scope**

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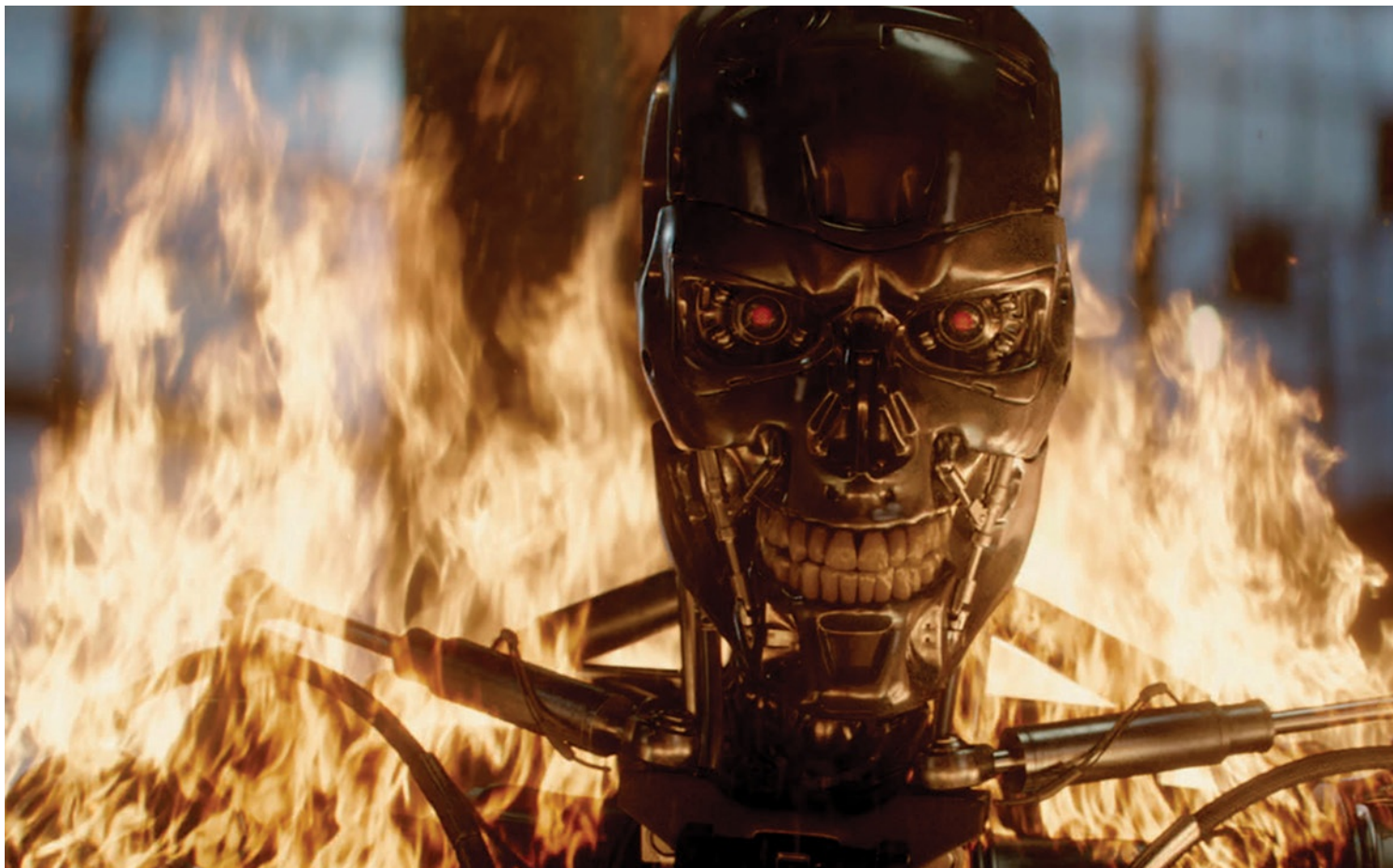
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# Time Travelers

Kramer Morgenthau, ASC and director Alan Taylor take an iconic franchise into the future while honoring its past.

By Mark Dillon



**H**e's back, all right. After missing the fourth *Terminator* movie due to his California gubernatorial duties, Arnold Schwarzenegger returns to his most iconic role in *Terminator Genisys*, which revisits scenes from the franchise's first two James Cameron-helmed installments before veering in radically different directions.

In 2029, a war rages between cyborgs and a small army of humans who have survived a nuclear holocaust triggered by the self-aware Skynet defense system. Led by John Connor (Jason Clarke), the humans are close to victory when they discover that Skynet, via its Time Displacement Device (TDD), has sent a





In 2029, Skynet sends a T-800 Terminator (opposite) to 1984 to kill Sarah Connor (Emilia Clarke, this page, top), but the timeline has been altered thanks to a reprogrammed T-800 (Arnold Schwarzenegger, middle). Bottom: *Terminator Genisys* cinematographer Kramer Morgenthau, ASC frames the action.

Terminator cyborg back to 1984 Los Angeles — the timeframe of the first *Terminator* film — to kill John's mother, Sarah, thereby preventing him from being born and thwarting the humans' chances. Sgt. Kyle Reese (Jai Courtney) volunteers to follow the Terminator into the past and destroy it, but when he reaches Sarah (Emilia Clarke), things are not as he — or the viewer — expects. A reprogrammed T-800 Terminator called the Guardian (Schwarzenegger) has already been sent. Reese partners with Sarah to combat a shape-shifting T-1000 (Byung-hun Lee), then time-travels with her to 2017 to try to stop Skynet from unleashing nuclear Armageddon.

Director Alan Taylor, a feature and TV veteran, tapped frequent collaborator Kramer Morgenthau, ASC as director of photography. They had first teamed on the 2011 pilot of *The Playboy Club*, followed by a couple of episodes of



# Time Travelers

Top: John Connor (Jason Clarke, left) and Kyle Reese (Jai Courtney) lead an attack on one of Skynet's labor camps in the year 2029. Bottom: The crew captures the exterior action against large bluescreens.



*Game of Thrones* — one of which, “The North Remembers,” won Morgenthau an ASC Award. They then took their world-building credentials to the big screen with 2013’s *Thor: The Dark World* (AC Dec. ’13).

“It’s a nice collaboration,” Taylor says. “I feel strongly about composition and camera movement. I don’t have the eye Kramer has for lighting, so I’m happy to have him do it his way. Sometimes there might be an image he likes but I don’t think will work, and we’ll arm-wrestle. It’s a fun process.”

In a separate interview, Morgenthau adds, “We share a similar aesthetic, and having done this much work together, we know each other’s strengths and weaknesses and comple-

ment each other well.”

The cinematographer had three months of preproduction, during which he and his collaborators steeped themselves in the visual style of *The Terminator* (AC April ’85) and *Terminator 2: Judgment Day* (AC July ’91). “We broke down the work that [Adam Greenberg, ASC] and Cameron did on those,” Morgenthau says. “We revisit the 1984 time period of *The Terminator* and re-create part of that movie nearly shot-for-shot. We were inspired by iconic science-fiction films such as *Blade Runner*, 2001: *A Space Odyssey*, *La Jetée* and *Children of Men*.”

*Terminator Genisys*’ three chief time periods are each marked by a unique look. “Film noir influences many

things that I do, and it’s definitely here,” the cinematographer says. “The battle between man and machine and the fear of a technological singularity and a nuclear holocaust lends itself to extremes of shadow and light, contrast and expressionism. When we go to 1984, the palette is magenta-blue with hard light, inspired by the lighting of Adam Greenberg, ASC in *The Terminator*. The future war has a strong cyan and blue quality with heavy red accents from the Terminator technology, and the look of 2017 is cleaner, more restrained, and not color-biased in any way.”

Taylor was most inspired by *T2*. “There wasn’t a lot of moving camera in that,” the director notes. “There are some great sequences of super-wide shots cutting to intense close-ups and then super-wide again. And Cameron’s wide shots are beautifully composed. Kramer and I looked at a bunch of stills from *T2* in trying to come up with a look for this one.”

But *Terminator Genisys* differs from its predecessors in that it was captured digitally. The crew ran two Arri Alexa XT cameras, shooting ArriRaw in 4:3 sensor mode onto Codex XR Capture Drives to capture a squeezed 2x anamorphic image at a resolution of 2880x2160. This 1.33:1 squeezed information was de-squeezed in post to a 5760x2160 image (a 2.66:1 aspect ratio) for a later 2.39:1 extraction and delivery.

“This is a visual-effects-driven movie, and it just seemed best to shoot digitally,” Morgenthau says. “It would have been cool to shoot flashback sequences and the 1984 section on film, but to build a shoot on multiple formats would have meant carrying multiple camera packages. For simplicity’s sake we shot everything on the Alexa XT, which is a beautiful camera. It didn’t feel like compromising.”

The movie was shot with anamorphic lenses for a 2.39:1 aspect ratio. “The anamorphic look gave us a lot of texture and added a more nuanced, imaginative quality to the digital [image],” Morgenthau notes. “We mostly used Panavision C Series primes, which are a



bit softer and gentler and take some of the hardness off the digital [image] but still look super crisp.” E Series lenses were called upon for occasional shooting at 135mm and 180mm, while the second unit made use of the G Series. “Each one of those lenses is hand-built and hand-tweaked by Panavision,” the cinematographer continues. “It’s a lot of fun to have that much control over the optics. You don’t have as much control over the digital sensor as one might have had with a photochemical process, but you can now focus on how the light is shaped and texture is created optically.”

He adds that they shot mostly at T4. “The C Series looked best there,” he notes. “The resolution gets trickier if [the aperture gets much wider].” The crew chose Panavision AWZ2 40-80mm T2.8 and ATZ 70-200mm T3.5 zooms when using camera cars and the Supertechno 30 crane. “They’re great on cranes when you don’t always have time to change lenses,” Morgenthau says.

He jokes that Taylor sees the world through a 40mm lens. “The 40mm feels like a normal point of view and the 50mm is slightly more elegant,” the director responds. “For anamorphic I mostly use the 50mm. That’s partly because I came up through a certain kind of storytelling on *The Sopranos* and *Mad Men*. It’s not like a Michael Bay style with super-long lenses and lots of moving camera.”

Double Negative and the Moving Picture Company were the movie’s main visual-effects vendors, with Industrial Light & Magic chipping in shots of San Francisco getting nuked. Academy Award winner Janek Sirrs (*The Matrix*) served as visual-effects supervisor. Taylor says Sirrs was “very proactive with suggestions about story and the way action sequences might be handled.” The filmmakers opted for in-camera effects where possible, but the digital component was large, in part due to the production’s altering of New Orleans to look like Los Angeles and San Francisco.

Seventy-seven days of main-unit principal photography got underway in April 2014. Production designer Neil



Top: A T-800 guards the labor camp. Bottom: The camp’s human captives are freed.

Spisak built massive sets, including 1984 and 2029 versions of the TDD. Approximately 15 percent of the egg-shaped 2029 room with its raised central TDD platform — which the resistance discovers after a battle — was constructed at NASA’s Michoud Assembly Facility, and the rest was digitally extended over greenscreen by Double Negative.

Morgenthau had eight to 12 practical work lights and four 2K halogen bulbs custom-fabricated by the set-decorating department and installed around the TDD to illuminate the set and actors and to produce flares. Fill lights for actor close-ups included a pair of Kino Flo Celeb 200 DMX LEDs, a pair of Celeb 400s and a 400Q; these

fills, diffused with Magic Cloth, were operated by lighting-console programmer Kevin Matz. Additionally, 60 checker-boarded DMX Image 80s on an overhead truss behind a 60’x100’ silk provided ambience. On these fixtures, five tubes were 3,200K and three were 5,500K so the crew could always find the appropriate day/night color mix without gelling.

After Reese apprehensively enters the TDD platform, he is raised by a hydraulic lift, then floats in the anti-gravity chamber as the time-travel process begins. The crew filled the wedged, circular ceiling of the TDD with strips of LiteGear LED LiteRibbon plugged into separate circuits and programmed to different

# Time Travelers



Top: The Terminator arrives in 1984 Los Angeles. Middle and Bottom: Reese follows the Terminator into the past, where he is pursued by the shape-shifting T-1000 (Byung-hun Lee).

cues, giving the impression that the TDD was “spinning or transitioning,” Morgenthau notes.

“We had 30 1-foot-by-1-foot LED strips glued to [polycarbonate sheets] and soldered together that we scattered around the set to amplify the [movement],” adds gaffer Steve Mathis. Serving the same purpose were six customized three-circuit halogen MR16s in metal housings prepared by Mathis’ crew, who nicknamed them “spook lights.”

The steel TDD’s arms, which were lit by embedded LED LiteRibbon, start to spin around Reese. The effect was partially realized in-camera by powering the arms with relatively quiet custom batteries. Special-effects supervisor Mark Hawker says his department prepped the moving TDD for 10 weeks. As the machine revs up, the faster-spinning arms become a digital element, and CG electrical streaks were added as well.

Shots of Reese time traveling within the TDD sphere were captured on the 2.5K Vision Research Phantom Flex at 1,000 fps. “We took an ultra-high-frame-rate image of him turning around and played it as though he’s moving really slowly and the world is zipping by in comparison,” Sirrs explains.

The largest-scale scene has the humans — armed with guns, “Goer” military vehicles and helicopters — attacking the Skynet camp where their compatriots are imprisoned, and facing off against a variety of land and air Hunter Killer (HK) machines and skeletal, gun-toting T-800s. The night exterior was shot over a couple of weeks in a vacant lot near New Orleans’ Industrial Canal. The quarter-mile-long set featured Spisak’s huge wall builds — constructed from reconfigurable 20’x20’ Styrofoam panels — and was digitally extended by MPC to give a massive sense of space.

The walls were illuminated by built-in ColorBlast TR LED fixtures and LiteGear LED strips that provided a red glow motivated by an electrical fence created by the visual-effects department. For closer shots, the glow was augmented by spook lights, Celebs, Baby and/or Junior lights gelled with what the crew dubbed





Top: Sarah rescues Reese from the T-1000. Bottom: The crew captures elements of the ensuing chase sequence against bluescreen.

“Terminator red”: Lee 106 Primary Red. “We had torrential rains that ruined the ballasts of some of the controllers inside the walls, which weren’t waterproof,” Mathis recalls. “It was a nightmare. We pulled it off, but my poor LED crew spent a lot of time working in rain and mud trying to make these things work so they were ready when we got there at night.”

The set was surrounded by 12-light Maxi-Brutes on 80’ and 60’ Condors, while an enormous moon box containing 16 6K space lights and six 1K Pars in a frame wrapped with Quarter Grid and Cyan CC30 was suspended from a crane over the main battle area along with a pair of soft boxes, each containing eight of the space lights. A Bebee Light provided the major backlight and could be positioned at either end depending on camera direction. Moving Clay Paky Alpha Profile 1500 beam shapers on scissor lifts gave the impression of sweeping prison lights, while the Maxi-Brutes and gelled spook lights and Celebs on stands around the set provided the light motivated by explosions, fires and gunfire.

The second unit also worked several days on the sequence, adhering to the same lighting scheme. Hawker’s team flipped a Goer, blew up others and set off explosions with black powder and Kinepak beneath bags of concrete to create smoke clouds upon detonation.



These were later augmented with digital pyrotechnics. A helicopter unit captured aerial views.

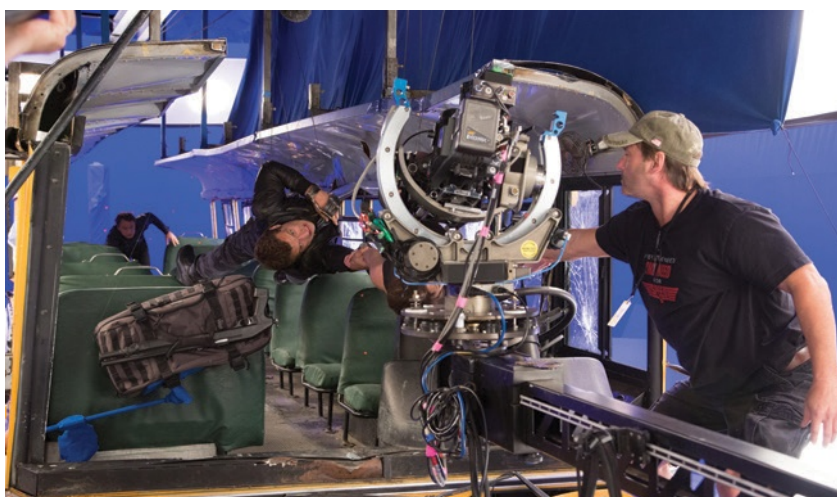
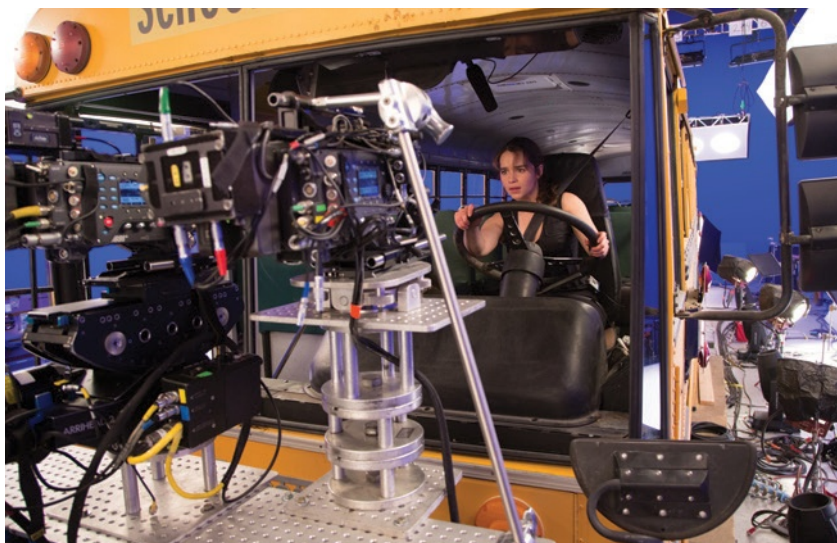
As John and Reese near the camp wall after the resistance has downed the electrical fences, a spiderlike HK machine drops out of the sky and blocks them. The crew dropped a steel plate — later replaced with a CG rendering — to kick up dust. A 20K illuminating a Quarter Silk behind the wall provided a simple foreground light through a vertical gap, which was overexposed to blow out, while actor close-ups were illuminated by spook lights and Maxi-Brutes gelled with Roscolux 20 Medium Amber motivated by firelight.

One of the movie’s most-anticipated scenes has the Guardian combating the T-800 sent to kill Sarah — in other words, present-day Schwarzenegger versus his younger self. The filmmakers started off by re-creating the scene from *The Terminator* in which the T-800 arrives via the TDD sphere outside L.A.’s Griffith Observatory. The location was re-created in a New Orleans parking lot.

In one of the film’s greatest visual-effects challenges, MPC digitally replaced the face of actor Brett Azar — who had tracking marks on his visage — with a CG version of the younger Schwarzenegger. “We were lucky to find



# Time Travelers



Top and middle: Cast and crew shoot onstage for portions of a chase sequence that results in the school bus Sarah has commandeered flipping over and teetering off the edge of the Golden Gate Bridge. Bottom: More bus action is shot outside.

Brett, whose ambition was to have Arnold's proportions from that period, although he was not exactly the same," Sirrs recalls. "Brett's in some of the over-the-shoulder shots, but as soon as we get a good look at his proportions or face, we had to make him a CG character.

"It was painstaking to build a photo-realistic digital Arnold aged 37," Sirrs continues. "There are no cyber scans from that time. We had to go on pictures and sculpts and interpret things quite a lot."

To shoot the confrontation, an 80' Condor with a Maxi-Brute and another with a 20K were moved about as backlight. A moon box was placed above Schwarzenegger and Azar, who were surrounded on three sides by a tall greenscreen where the observatory and backgrounds would be digitally added. The greenscreen was lit by 52 Image 80s cantilevered off a truss and hung off a container wall. Actors' fill was supplied by Celebs through a diffusion through Full Grid diffusion frames.

A chase later in the film sees a powerful nemesis landing via motorcycle on top of a school bus being driven by Sarah, accompanied by Reese and the Guardian, on the Golden Gate Bridge. The villain crawls underneath the bus and pulls out the brake line, causing it to flip spectacularly and roll to the edge of the bridge.

The production could not shoot on the actual bridge, so the art department replicated 500' of it in a parking lot, incorporating four lanes of road, the curb, and the familiar orange railing and light poles alongside a bluescreen. It was a limited amount of space for the required car stunts, so Double Negative added digital cars and extended the bridge. Morgenthau adds, "We shot many different incarnations of the bus, including a process bus on stage, where we emulated movement with large truss rigs with dimmer-board-controlled moving lights, and a hanging bus and an upside-down bus. It was very involved."

The main unit also traveled to San Francisco for a day of shooting the actors near the real bridge. Aerial views were also shot, with digital vehicles added to match the action on the ground.





Working onstage, the crew and cast — including J.K. Simmons (top, left) — ready a helicopter scene set in the year 2017.

Hawker's team performed the actual bus flip, which was shot by second-unit director and cinematographer Alexander Witt in a parking lot with numerous cameras rolling. A Ford F-350 camera truck followed closely to get shots of the tires lifting off the ground; the truck had a cowcatcher and roll cage around it to protect stunt coordinator-driver Gary Hymes from any impact. A GoPro Hero4 Black shooting in 2.8K format functioned as a crash cam, and inside the bus, the crew set up a pair of Arriflex III 35mm cameras shooting Kodak Vision3 250D 5207, one simulating Sarah's perspective and the other pointed at the spinning horizon.

"We went with film cameras because if a digital camera loses power while running [due to an impact], you might lose some or all of the take," Witt explains. "We wrapped the Arri magazines with black bags and lots of tape to protect what we'd shot in case the magazines came off."

To execute the flip, the effects squad installed three nitrogen cannons in the back of the bus. The cannons used compressed nitrogen gas to force out pistons from a 6'-long, 10"-diameter



tube, each with 40,000 pounds of push. The driverless bus was towed on a guide cable, and when it reached its mark and the cannons discharged, two 1.5" AmSteel-Blue synthetic winch lines tied to the front of the bus and anchored to a large excavator helped propel the airborne vehicle's flip.

Mitch Dubin operated the A camera, which was most often on a Supertechno 30 with a stabilized Libra head, operated by crane technician Art Villaseñor and dolly grip Brad Rea. Steadicam was handled by B-camera

operator George Billinger. Handheld shots were used sparingly. Richard Masino and John Kairis were A- and B-camera 1st ACs, respectively. Morgenthau notes that "the camera crew were some of the best people in their respective fields. I was lucky to have them. On a picture this size, it is essential to have the strongest collaborators you can, as it's impossible to do everything on your own."

Morgenthau used a LUT designed by ASC associates Josh Pines and Michael Hatzler, Technicolor's vice



# Time Travelers



Schwarzenegger takes the wheel of a police car during the school-bus chase.


president of imaging and supervising digital colorist, respectively. Hatzler describes the LUT as a “subtle tone-mapped LUT that would allow us to get the most out of the Alexa material.”


Digital-imaging technician Ryan Kunkleman generated CDLs with Pomfort LiveGrade, utilizing Fuji IS-Mini hardware, and created stills from those CDLs using DaVinci Resolve 11;

he had four Flanders Scientific CM250 monitors calibrated by Technicolor for evaluation. “The footage was backed up using Pomfort’s SilverStack software, which provided check-summed copies and reports to send to post,” he explains. Kunkleman would send the stills from set to dailies colorist Brent Greer, who did the color correction at New Orleans’ Second Line Stages using Colorfront On-Set Dailies and sent back tweaked stills. Also working with Technicolor’s FrameLogic, Greer rendered out Avid media files for editor Roger Barton, and H.264 files that were uploaded to Pix. Dailies were screened on a 2K projector at Second Line.

After the shoot, Morgenthau worked with Hatzler for a couple of days to establish a color bible by grading multiple “hero” shots from each scene in the film. Throughout the monthlong DI at Technicolor Hollywood, Hatzler would do various passes, update visual-effects shots, and have Morgenthau and

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Taylor in periodically to provide feedback.

Of course, grading for digital is quite different from the photochemical process used on the first two *Terminator* films. "It was important for Kramer to echo the look from *The Terminator* in our 1984 scenes," says Hatzler, who operated in an OpenEXR workflow, grading with Autodesk Lustre. "We knew there was a notable cyan/blue tonality in certain scenes from the first *Terminator*. As some of us still remember, the photochemical color timer would have been limited to a uniform monochromatic blue wash to create that look. Kramer and I wanted to avoid that by pushing those colors selectively within the full tonal range of the file, while creating as much color separation as possible and still retaining the photochemical feel."

In addition to the three time periods, there is also a flashback to Sarah's childhood in which she describes the murder of her parents by the Terminator.

"We graded that sequence in a hyper-sepia, diffused, golden-brown look," Hatzler explains. "We also looked at adding different levels of film grain to establish the flashback was taking place in a time a little further in the past. Kramer decided to go with a level that closely replicated the fine-grain film stocks from that era."

Creating various looks to put a fresh spin on the series presented a welcome challenge to the crew, who at points were working seven days a week to meet the schedule. But as far as the cinematographer is concerned, it was worth it. "It's been a great experience working on one of the iconic franchises of modern Hollywood cinema," Morgenthau says. "When I was younger, *The Terminator* was this larger-than-life movie, and I never would have imagined 30 years later I'd actually be shooting one of these movies. It's a dream come true."

## TECHNICAL SPECS

2.39:1

### Digital Capture

Arri Alexa XT, Phantom Flex, GoPro Hero4 Black

Panavision C Series, E Series, G Series, AW22, ATZ

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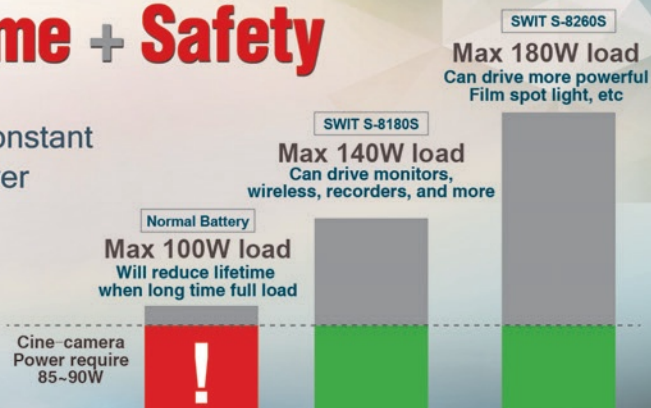
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# Personal Battles

Mauro Fiore, ASC aims for maximum authenticity in the ring on Antoine Fuqua's boxing drama *Southpaw*.

By Debra Kaufman



"I've been boxing since I was a kid," says director Antoine Fuqua. "I love the sport of boxing and I love the science of boxing. When I go to fights, there is an energy in those arenas that you feel. The air is thick with a sense of violence. Once the bell rings, the fight starts and it's just two men, going at it pound for pound."

Fuqua's passion permeates *Southpaw*, which stars a spectacularly ripped Jake Gyllenhaal as boxer Billy Hope; Rachel McAdams as his wife, Maureen; and Forest Whitaker as Billy's mentor and trainer. The film — which follows Hope through his fight to the top, the tragic events that tear his life apart, and his struggle for redemption — was shot by Academy Award-winning cinematographer Mauro Fiore, ASC, whose collaborations with Fuqua include *Training Day*, *Tears of the Sun* and the upcoming Western *The Magnificent Seven*.

"*Southpaw* is a project that Antoine has been passionate about for a long time," says Fiore. "We talked about this film four years ago, and finally the Weinsteins decided to produce with Jake in the starring role."

As Gyllenhaal was training — triple sessions daily alongside Fuqua — the director started talking with Fiore about how to "get into the head of Billy Hope, and conceptu-





Opposite: Billy Hope (Jake Gyllenhaal) fights for redemption after personal tragedy takes him to rock bottom in the feature *Southpaw*. This page, top: Fight manager Jordan Mains (Curtis "50 Cent" Jackson) leaves Hope as the boxer spirals out of control. Bottom: Cinematographer Mauro Fiore, ASC lines up a shot.

ally deal with his breakdown," the cinematographer says. The idea they came up with was twofold. First was the look they hoped to achieve from each of the four fight scenes in the movie: "Reality," explains Fuqua. "As close to reality as you could possibly get in a film."

Second was to tell Hope's story through each fight. "We didn't do a lot of specific storyboarding," Fiore says. "We tried to let the action lead the concept. Antoine wanted the first fight — which takes place at Madison Square Garden — to be the introduction of the fighter and his character. It's very observational, with an objective viewpoint." The fights that follow become increasingly subjective. In the second fight, notes Fiore, "we are slowly getting into the ring with him, and into his head." And it's a brutal match — or as Fuqua puts it, "self-punishment. A sense of guilt and an attempt at suicide."

By the time the film reaches the final fight, "we've mounted cameras onto the fighters, so you become part of Billy's mind and expression," Fiore says. "You experience the fight the same way he does."

Fuqua's ambitious plan was to



shoot all four fights in the first two weeks of production. "We had a lot of doubt at first," admits Fiore. "Jake and the other fighters had to be prepared to go all the rounds of each fight without stopping, and we were rolling the whole time. It was exhausting for them, but it ended up being incredible, due to Jake's preparedness and Antoine's intensity in getting the action in a continuous run."

Each fight was highly choreographed, says Fiore, thus calling for

substantial rehearsal time. "We had monitors for every camera, the same way you would in TV coverage, and we ran through what everyone would be doing," says the cinematographer. "We'd specifically communicate after we filmed each fight; we'd play back and observe, and talk about what we could do to improve."

The filmmakers turned to HBO World Championship Boxing as their model, particularly for the first fight. To



# Personal Battles



Top: Hope succeeds in the ring with his wife, Maureen (Rachel McAdams), by his side. Middle and bottom: Camera operator Kirk Gardner employs a Freefly Systems Movi M10 to capture unique angles for a hospital scene.



ensure authenticity, the production brought on two seasoned HBO Boxing camera operators, Todd Palladino and Rick Cypher.

As Palladino — a 13-year veteran of HBO Boxing as a ringside handheld-camera operator — explains, “We did multiple takes of the fight sequences, including different camera angles, as well as rolling straight through. [During those extended takes] we averaged two to four rounds of boxing, with each round being three minutes long without a cut, covering it like a live televised fight. [Shooting ringside] is so intimate; it really brings the viewer into the action.”

Palladino adds that on occasion he’s nearly been knocked out of the ring. “You try to anticipate the direction the boxer will go, but I’ve had some near misses where the glove has hit the camera. Once in awhile, I’ll get splattered by sweat or blood, which can take you out of the game a little bit.” No strangers to scripted drama, Palladino and Cypher worked previously on *The Fighter* and *Grudge Match*. “We’ve become Hollywood’s go-to guys for fighting movies, I guess,” Palladino lightheartedly observes.

Fuqua and Fiore attended an HBO match at Madison Square Garden, both to observe and to shoot background plates. “The visit to Madison Square Garden for a fight was when it all came to life,” Fiore recalls. “It’s a huge, spectacular event. Production designer Derek Hill and I had already done a lot of research into the HBO world of fighting, and at the fight, we were able to walk around, talk to every technician and even get lighting diagrams.”

The plate shoot focused on a center block of the audience, which would be used to re-create a 360-degree view via visual effects. “We were collecting massive audience plates,” says Fiore. “The scale is incredible when you have so many people.”

These large audience plates were a crucial acquisition, as the location that would stand in for Madison Square





Top left and bottom right: Hope returns to the ring for a charity event held inside a church. Top right: Fiore and crew utilized skirted balloons to light a banquet scene.



Garden was a modest space at Indiana University of Pennsylvania. “This was what was available, and we tried to create the ring as accurately as possible,” says Fiore. “We could put in our lighting rigs and stay there for the period of time we needed to shoot. Even if the scale wasn’t accurate, the center of the ring was.”

Fiore gave the maps and diagrams of Madison Square Garden to lighting-console programmer and operator Kevin Hogan, who explains, “They asked me to figure out the rig, but there were hundreds of fixtures and perimeter trusses, and it wasn’t possible for us to do. So there were a lot of discussions about how much to shoot practically and how much would be expanded in visual effects.” With a mandate to create as much footage in-camera as possible, Fiore also conferred with visual-effects supervisor Sean Devereaux on the specifics of virtually expanding the arena.

To re-create the HBO-style experience, the production employed six Arri

Alexa XTs supplied by Arri CSC (now Arri Rental). Radiant Images provided the lens package as well as Vision Research Phantom, Silicon Imaging SI-2K Mini and Red Epic Dragon cameras, which were used for specialized shots. HBO is specific about camera placement, a blueprint Fiore followed as closely as possible. “One camera is in the middle of the audience, and you get left and right of the ring,” he says. “[They are] very specific as to height; you had to see above the second rope, meaning the fighters would be clear of all the ropes.” According to 1st AC Larry Nielsen, an

Angenieux HR 25-250mm (T3.5) zoom was used for these shots.

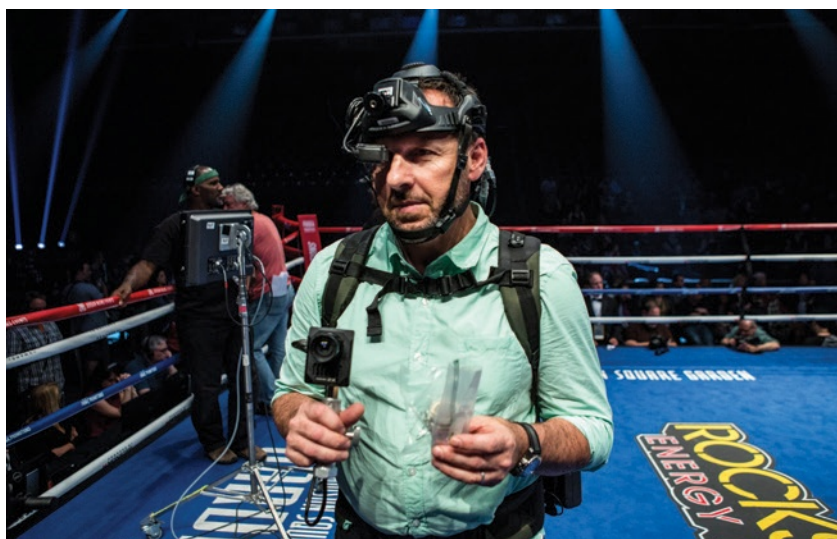
Another camera was above the ring near the location’s ceiling, 40’-50’ up, and captured the image for the Jumbotron. “In Madison Square Garden, the operator has a huge pedestal camera with zoom controls in a steel deck above the audience,” says Fiore. Nielsen reports that the high-angle camera used in the film was fitted with an Angenieux Optimo 24-290mm (T2.8) zoom.

Palladino and Cypher were positioned ringside on the left and right,



# Personal Battles

Top: Gardner steps into the ring with Gyllenhaal. Middle: Fiore and crew prepare another angle for the Caesars Palace fight scene. Bottom: Fiore tests a backpack rig with the SI-2K Mini camera, which was used to capture point-of-view shots in the ring.



standing on 2'x2' wooden camera platforms at the same level as the fighters. "Those cameras concentrate on the corners, but also follow the fight and zoom in according to the action," says Fiore. When it came to choosing the zoom lens for this specialized work, Fiore conferred with the two battle-tested authorities themselves. "They were very familiar with the Alexa and briefed us on what lenses would be best for us," says Fiore. "They were the experts and they consulted with us on every detail to make it accurate." Palladino reports that their Alexas were outfitted with Fujinon Cabrio 19-90mm (T2.9) lenses with manual zoom controls.

"We [pulled] all our own focus on all three movies we've done," Palladino says, though he is quick to point out that he has "major respect for focus pullers — they amaze me. Rick and I are used to running our own focus for boxing, and once you're accustomed to it, it becomes second nature. There are times when we miss our focus, but we're getting pretty good at it."

"Todd and Rick cover everything, close and wide, in the fight," says Fiore. "And as the fighters go into their corners, each [operator] takes a fighter. It doesn't matter if you see the other camera



because that adds to the accuracy; [that is what] you see in a live event.”

Palladino notes that he and Cypher wear all black clothing and “try to blend in. We’ve been working together for so long, it’s like a marriage. We know what we have to do just by looking at each other.” For maximum authenticity, a camera assistant maintained the camera cable, which at an actual HBO boxing event would run all the way back to the broadcast truck.

An Alexa was mounted on a Giraffe crane with a Talon remote head positioned 12’ off the ground in one of the corners, which, as Palladino notes, “was used in conjunction with the cameras Cypher and I were operating for alternate-angle knockout shots.” Both Alexa and Phantom cameras were used for slow-motion knockout sequences.

The production also used Angenieux Optimo 15-40mm (T2.6), 28-76mm (T2.6) and 45-120mm (T2.8) zooms on the Alexa cameras, as well as Cooke S4 primes.

The Arri Alexas recorded ArriRaw to onboard Codex hard drives. “We’d continually roll and fill up the whole card on one take,” says Nielsen. “We had a loader on the show who would go to the camera truck and download onto a Codex Vault and from there transfer over to a shuttle drive and backup drive for redundancy.” Dailies were generated on-location with Avid.

Moving lights were key to creating an authentic look for the fights. Hogan was brought on early to program the fixtures on his ChamSys MagicQ MQ100 lighting console; he used Cast Software’s Wysiwyg to design the lighting rig and previsualize the lighting cues. “I was able to do my entire setup a few weeks before shooting,” says Hogan. “This was very helpful to see what would work and what wouldn’t. I’d turn on a light in [Wysiwyg], and Mauro or [gaffer] Jon Morrison would suggest where to move it. We were able to make all those decisions on the computer model without having to make changes on-site. Thanks to that, we were able to fly the rig once and didn’t have to move



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# Personal Battles



The crew captures the action for the Caesars Palace fight.

things once it got in the air.” Hogan reports that by the time all the fights were programmed, he had a total of more than 800 cues.

Fiore describes the underlying technique in lighting the ring as intermixing “movie lighting and concert lighting.” The fight-rig fixtures included 156 Par cans on the truss immediately surrounding the ring, 20 Vari-Lite VLX LED Washes and 28 VL3000 Spots for moving lights, and 16 Clay Paky Sharpys on the ground to create search-light-beam effects in the air. “The Sharpys are featured fairly heavily,” says Hogan. “They’re in the background of every shot. In addition to the moving lights, we used a staggering amount of cable: 12,650 feet — or 2.4 miles — of six-circuit multicable.”

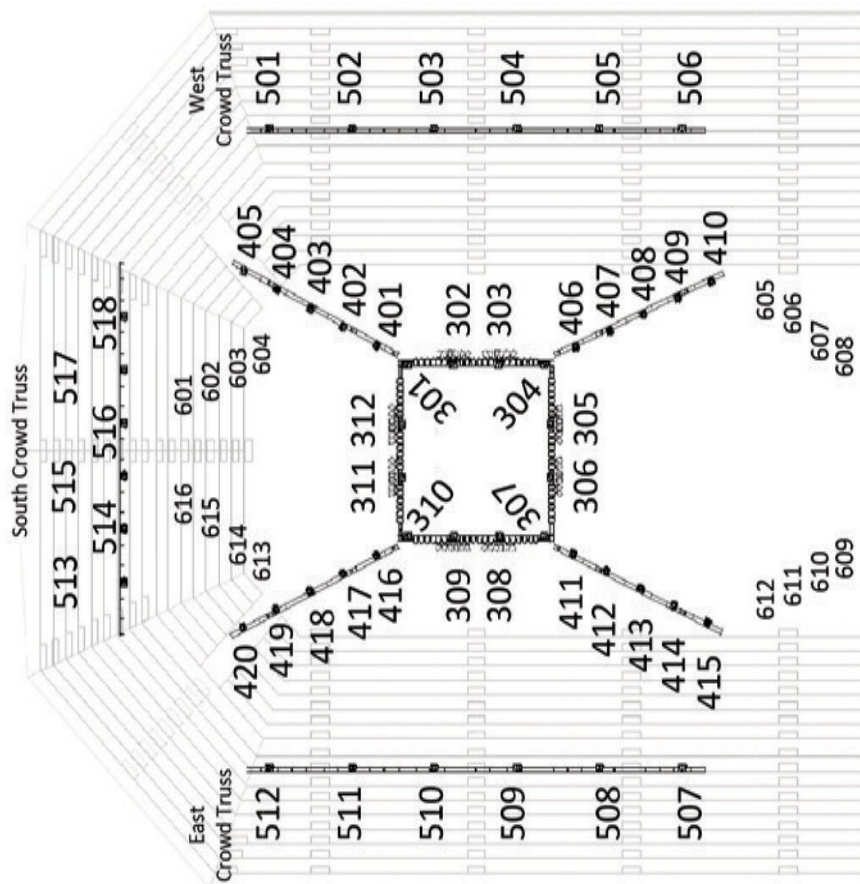
To light the actors in the ring, Fiore placed a large soft box above the center. “We wanted to sculpt the light around our boxers,” he says. “We put a lot of our efforts toward the center of the ring.”

Morrison notes that the soft box provided a lot of flexibility. “We hid it in the grid above the ring, and we had complete control over whether we wanted it dark or light on a specific side or wanted to focus light into the ring,” he says. “We could raise or lower the lights within the soft box for more or less intensity. By making a decision to throw a lighting-control device over the soft grid hanging above the ring, we allowed ourselves greater flexibility — we could roll with the punches. We used all the lights in the truss to backlight or frontlight the actors, and we used those moving lights to get nice rims on their heads or bounce off them.”

The university location stood in for three different fighting venues — the first, second and fourth matches — and Fiore determined that all four fights would each have a different color palette. “The first fight was Madison Square Garden blue, with lots of blue moving lights — a cool, observational palette,” he says. “The second fight [which takes place in Atlantic City] begins to use greens. The third fight, in

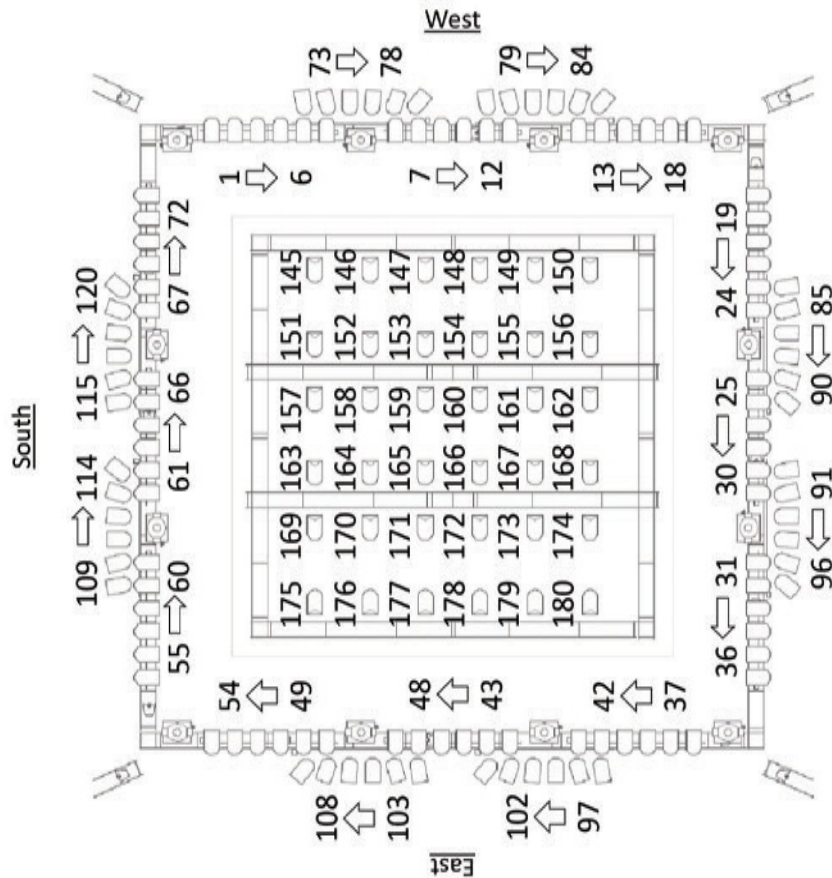


## Moving Lights:



- 301 – 312 = VL3000 Spots (Color Mix, Gobos)
- 401 – 420 = VLX Washes (LED Color Mix, No Gobos)
- 501 - 518 = VL3000 Spots (Color Mix, Gobos)
- 601 - 616 = Sharpys (Fixed Color Wheel, Gobos)

## PAR Cans:



This lighting diagram illustrates Fiore's approach to the boxing-ring set at Indiana University of Pennsylvania. The ring was re-dressed to stand in for three of the film's four fight venues, including Madison Square Garden and Caesars Palace.

# Personal Battles

The crew preps a night-exterior car scene.



a church, is a warm, red setting. And the last fight, Billy's redemption, takes place at Caesars Palace and goes with even warmer tones — golds and oranges, the colors you'd see at Caesars."

The second fight — a particularly brutal and bloody one — shows Billy's downfall. "It's a very tragic event for him," says Fiore. "[For that sequence] we started to experiment with different lenses for specific moments. A couple of times, we used [a Lensbaby] for Billy's disoriented point of view." A-camera operator Kirk Gardner also got into the ring with a Red Dragon fitted with a Cooke MiniS4 prime and mounted on Freelly Systems' Movi M10, a gyro-stabilized handheld rig. "[The Movi rig is] much smaller than the Steadicam," says Fiore. "You don't wear it; you hold onto it, and the fact that you can put the camera almost on the ground and lift it up to somebody's face makes it a pretty interesting rig that can create some really long shots."

By the end of the second fight, Hope has destroyed his boxing career by knocking out the official. "It's a beautiful Shakespearean moment," says Fiore. "We're still objective, watching him fall apart. There are some POV shots, but it was about an active, chaotic camera that reflects his [state of] mind. It's still basically HBO style, but it was important for us to get into the characters' minds a little bit."

The third fight, which takes place as a fundraising event, serves as Hope's

comeback. "This is the beginning of [Billy's regaining of] his confidence and sense of self-worth," says Fuqua. "The fight is a reminder of what boxing is about — the sweet science."

"It's re-creating the time when boxing was a community event," Fiore adds. The sequence was shot inside a former church, which has since been converted into a banquet hall. "The lights are very basic," the cinematographer explains. "There are four 1,000-watt Skypans, one in each corner, lighting up the boxers in the center. You have the red glow of the ring — not the blue of the [previous] fights — and stained-glass windows in the background. The idea was to make it a spiritual moment, capturing the intimacy of the environment."

The fourth and final fight is not only Hope's triumph, but also recalls the Sugar Ray Leonard match that inspired *The Fighter*, in which both boxers are exhausted by the 12th round. "It's the definition of a champion," says Fuqua. "It takes more than boxing skills to get you off that stool when you are bloody, hurt — broken lungs burning. And yet you still get back up to give and get more punishment to win the fight."

By this point in the film, the audience is alongside Billy in the ring. His point of view was captured with the extremely compact SI-2K Mini — recording to a Convergent Design Gemini 4:4:4 — which Fiore mounted on Gyllenhaal. "He did two rounds with

the camera mounted," the cinematographer says. "There's a backpack for the batteries [which Gyllenhaal wore], and a hard drive that cinches onto the body. We filmed this section separately [so the rig was not in the other cameras' frames]. At other times, Kirk was in the ring with the Movi rig. All the technology we had came together in this fight. We used [HBO-style] coverage, ring-side cameras, subjective POVs and the Phantom for the final knockout."

With multiple cameras shooting non-stop for all four fights, an unusually large amount of footage was generated. "The editor, John Refoua, kept saying, 'Great, great!'" recalls Fiore. "The more I have to play with, the better."

The DI for *Southpaw* took place at Technicolor's Seward and Tribeca West facilities, where colorist Skip Kimball worked with Blackmagic Design's DaVinci Resolve. "Skip is a very experienced colorist who comes from a photochemical background," says Fiore. "We've collaborated on several projects in the past, including *Avatar* and *Real Steel*."

Fuqua points to his close collaboration with Fiore as being key to realizing his storytelling goals. "We cast the movements and lenses and look of the movie as if we were casting another lead actor in the film," the director says. "Mauro and I have collaborated five times, as we are [now] filming *The Magnificent Seven*. Every time, we discuss story and work very closely together on every aspect of the look of the film." ●

## TECHNICAL SPECS

2.39:1

### Digital Capture

Arri Alexa XT,  
Vision Research Phantom Flex,  
Red Epic Dragon,  
Silicon Imaging SI-2K Mini

Angenieux Optimo, HR;  
Fujinon Cabrio;  
Cooke S4, MiniS4; Lensbaby



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# Post Focus

Colorist Stephen Nakamura prepares features and series for different display formats.



## Making the Most of Disparate Displays

By Stephen Nakamura

As a finishing colorist who's been involved in features for two decades — and television for longer — I've seen the color workflow significantly evolve. Until recently, though, the ways in which images were viewed, either on a monitor or from a projector, were fairly limited. There was the film-print standard that put a maximum of 14 foot-lamberts on the screen and had a color space defined by what film stocks could reproduce. There was also the HD standard, Rec 709, which had its own color space; based on CRT technology, it was developed for a brightest highlight of 30 foot-lamberts. Before that, there were the more limited standard-definition formats, and cinematographers were well aware of the color and contrast limitations inherent in those displays.

Of course, a significant part of the art of cinematography has to do with the way the images are ultimately displayed and viewed. When photography was primarily photochemical, photographers understood that a good printer could capture the essence and feeling of a beautifully shot 35mm chrome, but could never fully re-create the experience of seeing that slide projected in a dark room. There's no physical way for that piece of paper to display the contrast of that projected slide — two

display formats, two visual experiences. This concept is by no means foreign to directors of photography, but I think anyone involved in capturing, managing and posting images could benefit from discussing it — especially now, as the number of ways images are displayed is rapidly multiplying.

I recently worked with Claudio Miranda, ASC and director Brad Bird on *Tomorrowland* [AC June '15]. It was the first feature released in Dolby Vision, the projection method that can display the brightest highlights at 31.5 foot-lamberts — more than twice the traditional film and D-cinema standard. Dolby Vision and other high dynamic range (HDR) methods can create an entirely different viewing experience than a standard film or digital-cinema projector could ever display on a screen.

Finishing *Tomorrowland* for Dolby Vision and regular digital cinema wasn't about grading it for one display and then mechanically "translating" that grade to the other. Claudio and Brad considered what they wanted the movie to feel like in both types of projection, and they gave a great deal of thought to the implications of the fact that at the time of release, only four or five theaters would be able to actually display Dolby Vision, with its added detail in deep blacks and super-bright highlights. They decided to take advantage of *some* of the additional contrast range so the Dolby Vision version would be something special, but just because we *could* make shadows blacker than film

Photo courtesy of Company 3.



would allow didn't mean we *had* to.

If we'd started in the HDR (PQ) space, we would have been creating effects with color and contrast that could never be viewed on standard D-cinema screens. Instead, we started grading in traditional digital cinema space (P3), and then we remapped the files to take advantage of HDR — but that doesn't mean we took the same image and just made it brighter. Displayed in Dolby Vision, the converted files resulted in images that sometimes had highlights that wildly overpowered the portion of the frame Claudio wanted to draw the audience's eyes toward. Also — and this wasn't so much an issue in *Tomorrowland*, because the filmmakers didn't feel the super-deep Dolby Vision blacks were aesthetically right for that project — if a cinematographer designed a shot to maximize the deep shadow detail only displayable in HDR, that information would very likely disappear if those files were simply remapped from the HDR version to the P3 standard for D-cinema. You can get the math perfect for the "conversion," but that doesn't mean that the cinematographer's intention is going to come through on a different display with different characteristics.

I've mastered a number of versions of features specifically for stereoscopic projection, such as *Prometheus*, directed by Ridley Scott and shot by Dariusz Wolski, ASC [AC July '12], and *X-Men: Days of Future Past*, directed by Bryan Singer and photographed by Newton Thomas Sigel, ASC [AC July '14]. There, too, the filmmakers gave a lot of consideration to the way the images would be viewed at 14 foot-lamberts, at 4 (the standard for stereoscopic projection) and, in some cases, at 6 for select theaters with brighter 3D projection systems.

A post house like Company 3 can adjust the curve to constrain the image to the dimmer projection system, but the result isn't the same image at 4 foot-lamberts that you'd have at 14. It's close, but a small, bright portion of the frame that works beautifully at 14 might clip at 4. Objects that might stand out distinctly from a dark background at 14 might become muddy at 4. The relative bright-

ness on an actor's face versus the wall behind him might draw the viewer's attention in one display format but not the other, even though the image data was remapped "perfectly" for that display.

It's impossible to overstate the importance of the display component and its impact on how images look and feel. This is true not just when it comes to mastering for different types of exhibition, but during principal photography, too. Directors of photography frequently will set looks on location, which is a great way to communicate ideas to collabora-



**"It's impossible to overstate the importance of the display component and its impact on how images look and feel."**



tors on set and ensure that their vision radiates through the editorial and screening process. However, it's never a good idea to "bake in" any of these corrections. It's vastly preferable to have them exist as metadata alongside the raw image files as they go through color grading and the rest of the post pipeline to final color for D-cinema — and possibly other viewing formats that don't even exist yet.

Most professional cameras produce raw files and make use of an expanded color gamut; you want to preserve all of that image information. Also, if you're looking at the material on a monitor in Rec 709 space — which is still the standard at the moment — you're going to see some aspects of those images differently when you put those files up in a theater in P3 space. Some-

thing that might look contrasty on the monitor could read as flat in the theater; colors that might look subtle on the (perfectly calibrated) monitor might look garish in the (perfectly calibrated) theater.

Even as monitor technology and standards develop, and projection and monitor standards evolve, the viewing tools available on location are generally not going to present images exactly as they'll be seen in a projected environment. You can use algorithms to remap the files to the monitor's display technology, but that monitor still can't make colors it can't make. And even in the event that the cinematographer *can* see material displayed on location identically to the way it will be seen in its initial theatrical release, that still doesn't cover him or her for all the various ways the images may be shown in the future.

We're in a very exciting time where people are watching motion-picture content in innumerable ways. I recently remastered *Exodus: Gods and Kings* [AC Jan. '15] specifically for Samsung's very bright UHD panel and *Tomorrowland* specifically for Dolby Vision-enabled home displays. To me, these additional versions are aesthetically successful because the filmmakers took the time while working with me in the theater to learn how to get the most out of each unique display environment.

*Stephen Nakamura, senior colorist at Company 3 — a Deluxe Creative Services Company — has done the final grade on an extensive list of features, including Tomorrowland, Exodus: Gods and Kings, X-Men: Days of Future Past, Prometheus, Oz the Great and Powerful and Zero Dark Thirty.* ●

# Filmmakers' Forum

Musician Graham Sharpe, one of three subjects in the documentary *Shoulder the Lion*, suffers from debilitating tinnitus. Co-directors Patryk and Erinnisse Rebisz strove to find visual representations of each of their subjects' conditions.



## Senses Work Overtime in *Shoulder the Lion*

By Patryk Rebisz

*Shoulder the Lion* is a documentary about the uncertainty of the future, as seen through the sensory experiences of three individuals. A blind photographer questions the power of images in today's visually saturated culture. A painter and former boxer searches for her place in life after a traumatic brain injury scrambles her thought processes. A musician, plagued by hearing loss, must give up performing and discover a new purpose.

These three stories provide the narrative backbone, but the film's subtext examines how we, as a society, depend on various media to perceive and understand reality. I shot and co-directed the documentary with my wife, Erinnisse Rebisz, who was also the film's editor. As filmmakers grappling with such abstract ideas, we had to ask ourselves, how do we avoid merely illustrating the narrative events and instead infuse our images with meaning?

As we considered how to visualize the story of Alice Wingwall, the blind photographer in our film, our research led us to the work of South African scholar David Lewis-Williams, who speculated on the origins of images. He proposed that thousands of years ago, in the total darkness of the caves, primal man (or woman) entered a trance state in which images started to materialize seemingly outside of the person's mind, as artifacts that could be touched, traced in the memory and left behind. This idea of darkness producing images fascinated us and seemed to illustrate the story of Alice's photography. It also led us to research Charles Bonnet Syndrome, in which the blind see visions that the brain produces — from spots and grids to

more detailed imagery — in order to make up for a lack of stimulus from the optic nerve.

As these images exist only in the mind, there is nothing “real” except darkness, so our interpretation of these concepts had to be appropriately Spartan. Ultimately, we decided to attach a half-dome piece of transparent plastic to the close-focus 20mm Sigma photo lens and projected images straight onto the dome; some of the images were traced from actual cave drawings, while others were abstract sketches by Wassily Kandinsky, who explored meaning behind line and point. The half dome became, in essence, a part of the lens, so it was as if there was nothing but the camera, which perceived these images inside its own “mind.” (We shot the film on the Canon EOS 7D, which was the most affordable camera for our purposes when we started shooting three years ago. It records 1920x1080p to the highly compressed H.264 codec, which looks surprisingly good.)

We still wanted to visualize how a blind person might “see,” and for this, Alice offered an answer when she told us that, to her, a word is worth 500 images. We started collecting groups of images that could define certain words: window, door, column, etc. It was as though we were in Plato's cave, but instead of looking for the real world, we were searching for the shadows. We projected these seemingly similar elements from Alice's photographs, filming them through a rectangular matte we placed in front of the lens to obscure anything other than the point of interest — the column, for example. The fractional image then implied, quite literally, that this one piece of information did not provide the full picture.

While filming, we also realized that Alice is the only one of our





Blind photographer Alice Wingwall reaches out toward the viewer (top), and delineates the frame for one of her photographs — and for the camera documenting her actions (bottom).



subjects who actively interacts with the edges of the frame — both our documentary frame and the frames of her photographs. In one scene, she sets up a still life to photograph; she reaches out toward the objects, trying to define the edges of her photograph, but also making the viewer aware of the movie's frame. In another scene, she seems to touch the screen, as though trying to get through to the viewers. She cannot see her audiences' reaction, but she also reminds us that no matter how "real" the person on the screen seems, what we see is only an abstracted image onto which we project our own emotions and ideas.

At another point in the film, we cut to a dark frame; Alice's back is to the camera, and she reaches toward a rectangle of white light. Our lighting here was very simple: a Source Four with sharply defined edges. The power of the composition comes from the emptiness of the space and the purposeful

misshaping of the composition, as Alice is presented with too much headroom. This image represents our visual interpretation of her reality; it was necessary not only to define what would go into the frame, but also to give the sense that the image is about more than what one is looking at.

Katie Dallam's story, which revolves around her difficulty in finding herself after suffering severe brain damage during a boxing match, called for re-enactments. The challenge for us was to find images that would enrich our understanding of the events — we didn't just want to show typical fight footage. As we started to imagine what it would have been like in the ring, I kept thinking about George Lucas' *THX 1138*, in which a character ends up in a prison with no walls — a prison that's in the prisoner's perception. The boxing ring's physical existence is no longer important, so instead we placed Katie in an empty space, lying on the floor, apparently half-conscious. She tries to

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**Top:** The filmmakers overexposed Katie Dallam with two 800-watt Joker-Bugs to simulate the light she described seeing following a boxing match that left her with severe brain damage. **Middle:** Dallam takes control of the light. **Bottom:** The crew shoots an abstract re-creation in which Dallam tries to fight off wafts of smoke.

move but is unable to do so, despite the lack of any tangible boundaries.

The fight is so integral to Katie's story that we needed more than one way to re-create it. Wanting to convey the experience of being punched over and over, I imagined each punch as a flash of light, and I thought about the way a CMOS sensor records a flash: Half the frame is overexposed while the other is unaffected. We put fireworks on the ground, and the exploding lights created rolling-shutter artifacts that served as a metaphor for the violence of a punch to the head.

Katie spoke of encountering the proverbial light that people see before dying. Wanting to illustrate this without making our shots appear banal or clichéd, I thought about the projector in a movie theater — a light that would blind anyone looking directly at it. As Katie looked at the camera, I overexposed her with two 800-watt Joker-Bugs; the light engulfed her and seemed to control her in some abstract way. A few shots later, though, she takes control and holds the light in her hands; to capture this moment, we dimmed a simple household bulb — powered by a cord run through Katie's clothing — so that it would be easy to handle.

During her convalescence, Katie had to relearn the basics of living: eating, talking, reading, math and so on. Much of the creative process here was a mental game we played, free-associating her spoken words with more-or-less-abstract visual interpretations. For example, a box of frozen peas struck us as mathematical: The peas stand in for a multitude of numbers, and together form a geometrical box shape. Similarly, we placed a loaf of bread outside its normal context to illustrate Katie's inability to eat, and a dolly move through rectangular cutouts visually conveys her inability to remember familiar words.

Musician Graham Sharpe is deeply involved in running KnockanStockan, one of the most successful indie music festivals in Ireland, but can no longer play music onstage due to the increasingly debilitating tinnitus in both of his ears. In one of his sequences, we cut from the sensory madness of the festival to the calmness of Graham's strumming his guitar and singing, alone in a field, playing music to the wind. It's a simple image, and much of its power comes from representing auditory noise as the tall grass waving in the breeze. Additionally, we shot from his back and kept Graham a



bit off-center to suggest the alienation he feels as a result of his condition.

Elsewhere in the film, Graham plays his guitar and sings in his living room. We knew this sequence would end up toward the end of the film. After detailing his ordeal, we wanted a scene with a certain sadness but also a certain warmth — after all, he's determined to continue playing music even if he's "the only one who can hear it," he says. The skin tones are warm, the "sun" comes through the windows (achieved with two open-face Lowel 1Ks — the biggest lights we traveled with), but one-third of the frame is missing. It was cut off with a very heavy ND grad to imply that despite his resolve, things will never be the same. For Graham — and for our other subjects — there will always be something that's not there.

We edited on Avid Media Composer, cutting the film offline using the DNxHD36 codec and then online to DNxHD175 10-bit for mastering and grading. Though 10-bit might have seemed like overkill, as our source material was highly compressed 8-bit H.264, we did several tests and determined that with the fine gradation in the lighting for many of our studio shots, artifacts and noise were far more prevalent at 8-bit versus 10-bit. Our colorist was Lee Eaton, who graded on DaVinci Resolve. The final master was 2K DCP.

We approached the edit with a similar philosophy as we applied to production: Images are not for illustration, but an abstract expression of deeper meanings. It becomes a very delicate game to figure out how you choose images that add information to the verbal story without being "illustrative." The rule became clear: We cannot jump straight to poetry. First we must simply establish the basics of the story, and only then can we choose how to push the form and shed unnecessary language.

*Editor's note: Among a number of accolades the film has so far received, Shoulder the Lion was the recipient of this year's American Cinematographer Award for Best Cinematography at the Salem Film Fest. At press time, the film had also just been awarded the Fipresci International Critics Prize at the Krakow Film Festival. For more information about the production, visit [www.ShoulderTheLion.com](http://www.ShoulderTheLion.com).* ●



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### Alpha Grip Deploys Mobile Film Lab

Telescopic-crane and filming-vehicle specialist Alpha Grip, based at Shepperton Studios in London, has introduced the Alpha Lab, a mobile film lab that brings on-site processing directly to independent and big-budget productions shooting on film. At press time, the first truck in a planned fleet, the Alpha1 Lab, had just arrived in New York City.

Operated by experienced, professional lab personnel, the Alpha Lab measures 42' long and transforms into a state-of-the-art film-processing trailer that can be deployed to any film set or studio. Complete with a dark room, workshop, 4K scanning capabilities, and the ability to develop film at a rate of 50' per minute — and up to 20,000' during an eight-hour shift — the Alpha Lab also works in conjunction with digital-dailies services to streamline postproduction.

"The Alpha1 Lab is the answer to shooting physical film on location," says John Tadros, Alpha Grip managing director. "We're excited at the prospect that every studio and director around the world who chooses to shoot on film can have an Alpha Lab available and deployed to their doorstep."

Fully functional within two hours of arriving, the Alpha Lab is generator-powered when docked, so there's no need to worry about power outages. The Alpha Lab is also an eco-friendly, Thames Water-licensed facility, featuring an onboard electronic chemical mixing lab with Kodak Kit chemistry, and it houses all of its chemical waste for proper disposal at off-site facilities.

"The broad support of film we are seeing from studios and directors alike has been amazing," says Andrew Evenski, Kodak's president of Entertainment & Commercial Films. "Kodak is all-in on film, and we will continue to support creative ways to deliver the best products from the best people. Alpha Grip is streamlining the filmmaking process, and we're excited about how it can transform the film industry."

For additional information, visit [www.alphalab.london](http://www.alphalab.london), [www.alphagrip.co.uk](http://www.alphagrip.co.uk) and [www.kodak.com](http://www.kodak.com).

### Canon Adds 4K Reference Monitor

Canon U.S.A. Inc. has expanded its portfolio of reference-display products with the introduction of the DP-V2410 4K Reference Display. Measuring 24" diagonally and weighing approximately 26 pounds, this new display was engineered to serve as an easily transportable on-set reference for 4K/UHD and 2K/HD program origination. It is housed within a sturdy metal frame that includes handles and adjustable feet that facilitate rapid setup in any shooting environment. It also features a 24-volt DC input.

The display's 17:9 10-bit In-Plane Switching (IPS) Panel features outstanding sharpness and deep and accurate black reproduction that provides a 2,000:1 contrast ratio, which complies with DCI specifications. A special anti-glare coating helps ensure faithful image reproduction within challenging environments often encountered on set. A Canon-designed RGB LED backlight system and specially developed high-bit-depth image-processing engine helps ensure highly uniform brightness and accurate DCI-P3 color reproduction. The display panel and associated digital-video processing offer two modes of HDR portrayal. Additionally, the internal deBayering facilitates direct live viewing of the uncompressed raw 4K/2K outputs of the EOS C500 and EOS C300 Mark II cameras.

The 10-bit panel supports accurate tonal reproduction, allowing precise portrayal of broadcast standards ITU-R BT.709, EBU and SMPTE C, and also near complete portrayal of the DCI-P3 digital-cinema standard. The 4096x2160 display pixel structure and 17:9 aspect ratio displays all broadcast and cinema digital-sampling standards on a precise dot-by-dot basis. The DP-V2410 can also accept wide color gamuts like the ITU-R BT.2020 UHD gamut using a specially developed gamut-mapping technology to optimally display color data outside of the panel's native color gamut.

The reference display also features several shooting-assist functions for cinema professionals, including support for Canon Log 2 and the ACESproxy transfer standard, as well as the ability configure the display's eight LUTs for each picture mode, allowing the user to freely switch LUTs within the same picture mode.

The range of elements displayed on the screen now includes waveform monitor, vectorscope, audio-level meters, Area Markers and camera information, and the display is fully customizable to suit a user's needs and circumstances.

An HDMI terminal has been added, improving linking capabilities with digital cameras and allowing transmission of 4096x2160 60p images





via a single cable. The DP-V2410 is capable of frame rates of up to 4K 30p in raw over a single 3G-SDI cable, or up to 4K 60p in raw when using two 3G-SDI cables and capturing footage with Cinema EOS cameras. The display also features four input and four output 3G/HD-SDI ports, and one stereo headphone mini-jack.

For additional information, visit [www.usa.canon.com](http://www.usa.canon.com).

### Post Factory NY Joins Sim Group

The Sim Group, a supplier of production and postproduction equipment and services to the motion-picture and television industry, has entered into an agreement to merge with Post Factory NY.

The move significantly enhances the Sim Group's East Coast presence. The company's Bling Digital unit recently opened a facility in Brooklyn, offering dailies, offline editorial and finishing services. Post Factory NY has two Manhattan facilities, comprising 38,000 square feet, with more than 60 editing suites, two color-grading suites, a DI theater and postproduction sound. Future plans call for further development of finishing services, both for feature films and dramatic TV series.

"This addition will allow us to more effectively address the needs of clients on the

East Coast and throughout North America," says ASC associate Rob Sim, CEO of the Sim Group. "It provides a great path for both companies to grow and to offer a more comprehensive mix of services. We are very excited to welcome Post Factory NY to the Sim Group family."

Post Factory, which will continue to operate under its current name and management, gains expanded resources and geographic reach through the ability to align with Bling and other Sim Group companies, including Sim Digital, PS Production Services, Chainsaw, Pixel Underground and Tattersall Sound & Picture. "We were looking for a partner who we felt understood our philosophy and roots and would help us accelerate our growth while preserving our culture," says Post Factory founding partner and CEO Alex Halpern. "We wanted a path to service our clients on the West Coast without diminishing our presence at home in New York. As an independent company, that's challenging. Now, we have not only gained a West Coast presence, but also an international presence. That will enable us to better service our clients working around the world."

For additional information, visit [www.simgroup.com](http://www.simgroup.com) and [www.postfactoryny.com](http://www.postfactoryny.com).

### DFT Launches Wet-Gate for Scanity

Digital Film Technology has launched its state-of-the-art Wet-Gate technology for its latest Scanity HDR film scanner. The new technology provides a real-time organic solution for the ingest and management of difficult-to-solve historical-film transfer issues, including dust and scratch removal, warping, buckles, shrinkage, weak or damaged splices, missing or broken perforations, notched edges, and vinegar syndrome. The system also works with both color and black-and-white film stock.

The Scanity HDR Wet-Gate works as a fluid tank that the film runs through, eliminating the need for complex vacuum systems. The fluid tank removes the risk of

bubbles being introduced; the film enters the fluid-filled gate through a pre-chamber to make sure that no air and dust reaches the scanning area. The film is then run onto an air-filled glass roller, which includes all the necessary components to illuminate the image-scanning aperture and the area for the perforation/hole detection. Finally, the film leaves the gate via a drying unit.

The Scanity HDR Wet-Gate system is made up of two main components: a Lens Gate Assembly (LGA), available for all 16mm or 35mm films, and a Supply Unit. The Wet-Gate can be mounted like a standard "dry" LGA and is connected to a supply unit, which comprises a tank, filters and pumps to supply the fluid as well as electronics to control the LGA and the fluid stream. The entire system fits neatly into two 19" enclosures and is installed in a standard 19" electronic rack.

For additional information, visit [www.dft-film.com](http://www.dft-film.com). ●



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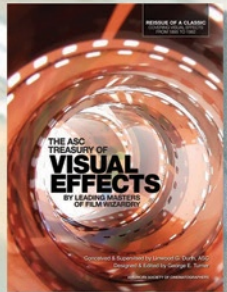
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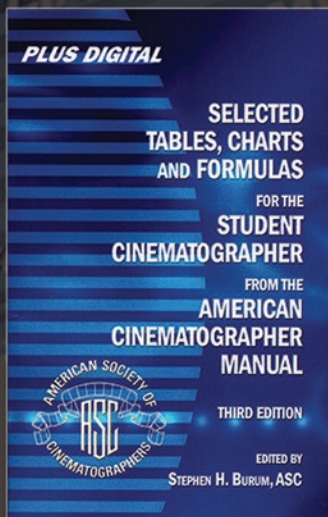
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# In Memoriam

## Bradley B. Six, ASC, 1940-2015

Society member Bradley B. Six died on June 9. He was 74.

Six was born in Los Angeles on Dec. 8, 1940. His father, Bert, was a studio still photographer, and his mother, Lorayne Duval, was an actor. As Six told *AC* for the June '84 issue, "I was brought up in this business, but I never thought I would be doing what I am doing today. Believe it or not, years ago, I thought I would like to be a dentist."

Nevertheless, Six entered what he referred to as "the studio business" in 1959 with a job in the Warner Bros. mail room. In his downtime at the studio, he visited and asked questions of the camera department, where he soon found a job as a film loader. When budget constraints forced a shutdown at the studio, Six moved over to Fox, where he was responsible for taking care of the camera equipment. It would be another two years, though, before he went out on production.

Once on set, Six showed great patience and humility as he climbed the ranks toward cinematographer. "There were several directors of photography I worked with as an assistant or as an operator that influenced me," Six told *AC*. "Jack Swain, ASC was one of them. I worked with him on *Daniel Boone* for five years and he ... taught me a lot, the basics: 'Come on the set and keep your eyes open and your mouth shut. Watch!'"

Six worked with cinematographer William Clothier, ASC on the John Wayne feature *The Undefeated*, and with Ted Moore, BSC on the James Bond film *Diamonds Are Forever*. He also assisted or operated for such ASC members as Gerald Perry Finnerman and William Spencer, working alongside the latter for a full decade on series such as *The FBI* and *Barnaby Jones*.

While on hiatus from *Barnaby Jones*, Six took a job as an operator on the telefilm

*Power*, which was being photographed by Jacques Marquette, ASC. When Marquette fell ill during production, Six was asked to take the reins as director of photography.



Twenty years after starting in the mail room, he had at last arrived. "I was shaking from head to toe," he recalled. "You hope that it's going to come, but you never expect it that way. I worked on the show for two or three weeks, and then Marquette came back. Shortly after that, I was asked to come to MGM to do a pilot."

In addition to pilots, Six began shooting second unit on series such as *The Dukes of Hazzard* and the Stephen J. Cannell-produced *The Greatest American Hero*. Cannell then asked Six to shoot the series *Quest*, followed by the hugely successful *The A-Team*. Six's other television credits included episodes of the series *Trapper John, M.D.*, *Mike Hammer*, *Quantum Leap* and *7th Heaven*.

Six received his first Emmy nomination for an episode of the Western series *The Chisholms* that aired in 1980. "That made me feel good," he told *AC*. "I didn't win, but it's the nomination that counts, because it comes from your peers." He was again nominated a decade later for the *Midnight Caller* episode "Evil is Live Spelled Backward" (*AC* Oct. '90).

Throughout his television career, Six was frequently paired with first-time directors. While shooting *The A-Team*, he opined, "If the guy is a straight shooter, I'll bust my fanny for him. But I can't tolerate incompetence."

He was likewise adamant when it came to safety on set. "Coming up through the ropes, I was put in the position of being stuck behind the camera as an operator or as an assistant," he said. "Now I'm the boss and I can just walk away when we are doing a stunt, but I don't. I will not put my operators or my assistant in a position that I wouldn't be in. If I feel it's not safe, I say 'no.'"

Following the recommendations of Society members Alric Edens, Sherman Kunkel and Richard L. Rawlings, Six was officially made a member of the ASC on Oct. 7, 1985. He would go on to participate in the Awards, Golf and Membership Committees, and remained involved with Society activities after retiring in 1998.

Some 14 years earlier, when asked to consider his role as a cinematographer, Six offered, "First of all, I think of myself as a human being; second of all, as someone who makes entertainment. I consider myself a technician, but on the other hand I feel like an artist. When I decide how to use light, in a sense I am painting. I am painting the picture I envision on that screen."

— Jon D. Witmer



# Clubhouse News



Left: Jo Willems, ASC, SBC. Right: Roger Deakins, ASC, BSC (third from right) received this year's Pierre Angenieux Excellens in Cinematography Award at the Cannes Film Festival.

## Board of Governors Elected

**Richard Crudo** has been re-elected ASC president for the 2015-'16 term. The other officers are Vice Presidents **Owen Roizman**, **Kees van Oostrum** and **Lowell Peterson**; Treasurer **Matthew F. Leonetti**; Secretary **Frederic Goodich**; and Sergeant-at-Arms **Isidore Mankofsky**.

Also elected to the Board of Governors were **John Bailey**, **Bill Bennett**, **Crudo**, **George Spiro Dibie**, **Richard Edlund**, **Fred Elmes**, **Michael Goi**, **Victor J. Kemper**, **Daryn Okada**, **Peterson**, **Robert Primes**, **Roizman**, **Rodney Taylor**, **Van Oostrum** and **Haskell Wexler**. The alternates are **Mankofsky**, **Karl Walter Lindenlaub**, **Kenneth Zunder**, **Francis Kenny** and **John C. Flinn III**.

"I am humbled to once again have the opportunity to serve this great organization," said Crudo. "As we start to close in on the ASC's 100th anniversary [in 2019], we will continue to honor the intents of our founders by protecting and promoting the interests of the cinematographer. Our members are the best people in the world at what they do; by their efforts, the ASC will remain the industry's standard bearers for many decades to come."

## Society Welcomes Willems

New active member **Jo Willems, ASC, SBC** was born in Belgium in 1970 and

moved with his family to the Central African Republic at the age of 14. There, he attended a French school where he became interested in photography and nurtured a budding interest in cinema. In 1989, Willems returned to Belgium to study filmmaking; one of his instructors was cinematographer Willy Stassen, current president of the Belgian Society of Cinematographers (SBC). Willems pursued postgraduate studies at the London Film School and began working in the industry as an electrician. Three years later, he landed his first cinematography job on a short film.

He continued working on music videos and commercials before beginning an ongoing creative partnership with director David Slade; their collaborations have included the features *Hard Candy* and *30 Days of Night*. Willems has also enjoyed multiple collaborations with director Francis Lawrence, including the *Hunger Games* movies *Catching Fire* and *Mockingjay Part 1* and *Part 2*. Willems' feature credits also include *London*, *Confessions of a Shopaholic* and *Limitless*.

## Deakins Receives Angenieux Award

**Roger Deakins, ASC, BSC** was presented with the Pierre Angenieux Excellens in Cinematography Award at the 2015 Cannes Film Festival. Thales Angenieux

President Pierre Andurand presented Deakins with the award, an Optimo 45-120mm zoom engraved with the cinematographer's name. Collaborators and admirers who attended the ceremony included directors Joel and Ethan Coen, Denis Villeneuve and Agnieszka Holland; actors Frances McDormand, Jake Gyllenhaal and Irène Jacob; and cinematographers Mike Eley, BSC and Richard Andry, AFC.

## AFI Honors Deschanel

**Caleb Deschanel, ASC** received the American Film Institute's Franklin J. Schaffner Alumni Medal during the recent AFI Life Achievement Award Gala in Hollywood. According to the AFI, this honor "recognizes the extraordinary creative talents of an AFI Conservatory alum who embodies the qualities of filmmaker Franklin Schaffner: talent, taste, dedication and commitment to quality filmmaking." In 1969, Deschanel enrolled in the inaugural class of the AFI Conservatory along with fellow filmmakers and future Schaffner recipients David Lynch and Terrence Malick. Previous recipients also include cinematographers **Wally Pfister, ASC**, and Janusz Kaminski.

Photo of Clubhouse by Isidore Mankofsky, ASC; lighting by Donald M. Morgan, ASC. Jo Willems photo by Murray Close. Roger Deakins photo courtesy of Angenieux.



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### When you were a child, what film made the strongest impression on you?

*To Have and Have Not* was a good one. That film left a strong impression of what type of man I wanted to become.

### Which cinematographers, past or present, do you most admire?

Sidney Hickox [ASC], for his work during his contract days at Warner Bros., from great films like *The Big Sleep* and *White Heat* to *I Love Lucy*. Néstor Almendros [ASC] literally wrote the book: *A Man With a Camera*. It is a must-read for anyone pursuing a career in cinema. [ASC members] Conrad Hall, Haskell Wexler, Jordan Cronenweth, Vittorio Storaro — the list goes on.



### What sparked your interest in photography?

My father was a radiologist who used to purchase large amounts of X-ray film for his hospital. The sales people gave him a Super 8 camera, free film and developing envelopes that sat dormant in his closet. I became curious and started creating films of my friends in the neighborhood. We'd gather in my bedroom, tack up a white sheet to project on, and laugh out loud at our wacky films. Even in its most primitive state, the power of cinema was undeniably alive.

### Where did you train and/or study?

My first classes were at Los Angeles Valley College and Tahoe Film Workshops under Gerald Hirschfeld [ASC]. But it wasn't until my first job at Hill Production Services that I really began to train, hands on.

### Who were your early teachers or mentors?

Michael Endler from Hill Production Services and Sidney Sidell from the Howard A. Anderson Company taught me how to be an assistant cameraman. David Eggby, ACS was the first cinematographer who took me under his wing and shared his great wealth of knowledge; his approach to exposure and filtration gave me the confidence to begin shooting for others. George Spiro Dible, ASC inspired me to pursue multi-camera photography and gave me a basic understanding of lighting for four cameras.

### What are some of your key artistic influences?

Life. When I experience beauty, drama, comedy, etc. in our everyday world, I am compelled to document it. Whether with an SLR, an iPhone, a sketch pad or paint, I enjoy watching the way light plays a part in the world.

### How did you get your first break in the business?

I walked into Hill Production Services, met Jean Hill, the owner, and told her that I would sweep floors, clean toilets and do whatever she

needed, and in turn she could pay me whatever she liked — I just wanted to be around cameras. She hired me that day.

### What has been your most satisfying moment on a project?

On *Two and a Half Men*, executive producer Chuck Lorre wrote a song-and-dance scene for Jon Cryer and Ashton Kutcher with 40 dancers. It took place on the old New York Street on the Warner Bros. back lot. Since it was a fantasy sequence, I took the approach that our characters were in a Broadway musical on a gigantic soundstage, much like the exterior work in *West Side Story*. After weeks of prep, it was rewarding to see the satisfaction on the faces of the producers as the scene played out in real time.

### Have you made any memorable blunders?

Yes.

### What is the best professional advice you've ever received?

Make sure your chosen profession is your passion.

### What recent books, films or artworks have inspired you?

The Calder exhibit at the Los Angeles County Museum of Art is fantastic. The film *Mr. Turner* was my pick for best cinematography — truly masterful! The book *Journey to the East* by Hermann Hesse is a great reminder of the power you can gain by serving others.

### Do you have any favorite genres, or genres you would like to try?

A Western would be fun. Anything in a natural setting. My work has been 85 percent onstage.

### If you weren't a cinematographer, what might you be doing instead?

Farming, surfing, still photography and painting are some of my interests.

### Which ASC cinematographers recommended you for membership?

George Spiro Dible, Donald A. Morgan and Michael O'Shea.

### How has ASC membership impacted your life and career?

I now get approached to instruct classes and seminars in my field, which has been an enjoyable perk of being a member. The Clubhouse has proven to be a favorite place to exchange views and chime in on where our industry is heading. Spending time with the greatest cinematographers of our time is an honor beyond words.



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EXT. FILM SET - DAY

KODAK FILM and DIGITAL sit in director's chairs on a busy film set. With a break in the action, they wander over to the camera and chat with the CINEMATOGRAPHER, peering through the viewfinder of a 35mm film camera.

KODAK FILM

Shooting film, I see?

CINEMATOGRAPHER

That's right, 7203.

Two GRIPS walk past, carrying a large Fresnel.

DIGITAL

Doesn't that make things a bit more difficult as compared to say, I don't know... digital?

CINEMATOGRAPHER

It's not a matter of difficulty, it's a matter of discipline. We're shooting a 4:1 ratio, so we're running a tight ship.

KODAK FILM

Fascinating, don't you think, Digital?

DIGITAL

4:1?

CINEMATOGRAPHER

Basically, that means that for every scene, we've got 4 takes to nail it. Shooting film takes some planning, but it's worth it to create stories that are truly FilmWorthy.

Digital is confused and flustered.

DIGITAL

Why limit yourself? Why not just keep the camera rolling forever?

CINEMATOGRAPHER

Endless shooting doesn't guarantee great scenes - just more logging and time in the post-production suite.

DIGITAL

(dreamily)

Post-production... sweet.

The Cinematographer and Kodak Film look at one another and roll their eyes.

~~THE END~~  
to be continued

